

**135-TRC-08-004**

**SAFETY COMPLIANCE TESTING FOR FMVSS 135**  
**Passenger Car Brake Systems**

Mazda Motor Corporation  
2008 Mazda CX-7 Sport FWD, 4-door MPV  
NHTSA No. C85400

**TRANSPORTATION RESEARCH CENTER INC.**  
10820 State Route 347  
East Liberty, Ohio 43319



Final Report Completed: January 18, 2008

**FINAL REPORT**

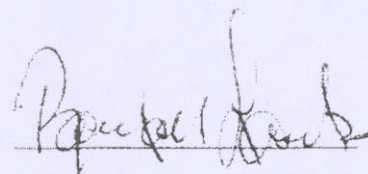
Prepared Under Contract No.: DTNH22-06-C-00033

**U.S. DEPARTMENT OF TRANSPORTATION**  
**National Highway Traffic Safety Administration**  
**Enforcement**  
**Office of Vehicle Safety Compliance**  
**1200 New Jersey Avenue S.E.**  
**West Building 4<sup>th</sup> Floor**  
**OVSC (NVS-221)**  
**Washington, DC 20590**

Prepared for the Department of Transportation, National Highway Traffic Safety Administration,  
under Contract No. DTNH22-06-C-00033.

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Prepared By



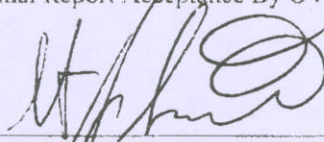
Approved By



Approval Date:

1/18/08

Final Report Acceptance By OVSC:



Contract Technical Manager, Office of  
Vehicle Safety Compliance

1/25/08

Acceptance Date

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4. TITLE AND SUBTITLE:  Final report of FMVSS 135 Compliance Testing of a 2008 Mazda CX-7 Sport FWD, 4-Door MPV, NHTSA No. C85400				5. REPORT DATE:  January 18, 2008	
				6. PERFORMING ORGANIZATION CODE:  TRC 20060110/8353	
7. AUTHOR(S):  Project Manager: ALAN IDA  Project Engineer: RANDALL A. LANDES				8. PERFORMING ORGANIZATION REPORT NO.:  TRC-DOT-135-078	
9. PERFORMING ORGANIZATION NAME AND ADDRESS:  Transportation Research Center Inc. 10820 State Route 347 East Liberty, Ohio 43319				10. WORK UNIT NUMBER:	
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12. SPONSORING AGENCY NAME AND ADDRESS:  U.S. Department of Transportation National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance (NVS-221) 1200 New Jersey Avenue S.E. West Wing 4 <sup>th</sup> Floor Washington, DC 20590				13. TYPE OF REPORT AND PERIOD COVERED:  Final test report Tested: 11/14/07 to 01/16/08	
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15. SUPPLEMENTARY NOTES:					
16. ABSTRACT:  Compliance tests were conducted on the subject 2008 Mazda CX-7 Sport FWD, 4-Door MPV, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-135-01 for the determination of FMVSS 135 compliance. Test failures identified were as follows:  None.					
17. KEY WORDS:  Compliance Testing Safety Engineering FMVSS 135				18. DISTRIBUTION STATEMENT:  Copies of this report are available from: NHTSA Technical Information Services NPO-411 1200 New Jersey Ave, S.E. Washington, DC 20590 Email: <a href="mailto:tis@nhtsa.dot.gov">tis@nhtsa.dot.gov</a> FAX: 202-493-2833	
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## 1.0 INTRODUCTION

Tests were conducted on a 2008 Mazda CX-7 Sport FWD, 4-door MPV, manufactured by Mazda Motor Corporation, to determine compliance with FMVSS 135 "Passenger Car Brake Systems." All tests were conducted in accordance with the U.S. D.O.T., NHTSA Laboratory Procedure TP 135-01 and/or the corresponding TRC Inc. Test Procedure that was submitted to NHTSA for their approval. The Test Procedure was clearly described in the submitted document and has not been repeated in this report.

All stops were performed manually.

All tests were conducted by TRC Inc. personnel using the following TRC facilities:

### 7.5-Mile Test Track

Vehicle Maximum Speed

Burnish

Heating Snubs and Hot Performance Stops

Brake Cooling and Recovery Stops

### Skid Pad

Cold Effectiveness Stops

High Speed Effectiveness Stops

Stops with Engine Off

Failed ABS

Failed Variable Proportioning Valve (if applicable)

Failed Hydraulic Circuits

Brake Power Assist Unit Failures

RBS Failure (if applicable)

EMF (Battery) Failure (if applicable)

### Brake Slope

Parking Brake

Average PFC during the test period was 1.01 (Skid Pad) and 1.00 (Test Track) utilizing the ASTM E1337 w/E1336 tire method.

The test vehicle was ABS equipped. Therefore, the Wheel Lock Sequence and Adhesion Utilization Tests were not performed.

This vehicle met the requirements of FMVSS 135.

# DATA SHEET 1 - VEHICLE INFORMATION

## VEHICLE SPECS

Year: 2008	NHTSA No: C85400
Mfr: MAZDA MOTOR CORPORATION	GVWR (Kg): 2168
Make: MAZDA	GAWR Front(Kg): 1150
Model: CX-7 SPORT FWD	GAWR Rear(Kg): 1022
Body Style: 4DR HATCHBK MPV	Wheelbase (mm): 2743.2
Mfr. Date: 06/07	Odometer: Start: 71 MI. End: 541 MI.
VIN: JM3ER293X80174861	

## BUSES ONLY

Chassis Mfg.: N/A  
 Serial No.: N/A  
 No. of Seats: N/A  
 Manufacture Date: N/A

Engine Type: GASOLINE, I-4 CYL DOHC, DIRECT INJ, TURBO CHARGED, PISTON	Tire Size: P235/60R18
Displacement: 2.3 LITER	Tire Type: EAGLE RS-A, 102H, RADIAL, M&S, TUE
Engine Hspwr: N/A	Tire Mfr.: GOODYEAR
Idle Speed(rpm): 72.9898	GVWR Front Press.(kpa): 220.63
Transmission Type: AUTO. 6-SPD. W/OD FWD	GVWR Rear Press.(kpa): 220.63
No. of Axles: 2	

## BRAKE APPLY SYSTEM

Brake Series: Front: DISC Rear: DISC	Power Assist Unit: YES
Brake Actuation	Pwr Unit w/Accumulator: NO
(Hydr. Circuit Split): DIAGONAL	Pwr Asst./Pwr Unit w/Backup: NO
Power Unit: VACUUM	Variable Prop. System: NO
Anti-Skid unit Mfr: BOSCH	Anti-Skid Device: YES
Parking Mechanism: YES	
Type of Parking Unit: AUTOMATIC TRANSMISSION WITH PARK DETENT.	
Mstr Cylinder Dia(mm): N/A - See Appendix C.	Pedal Ratio: 2.7 : 1

## FRONT SYSTEM BRAKE COMPONENT MATERIALS AND CONSTRUCTION:

BRAKE TYPE: DISC	Material: CAST
Drum Construction: N/A	LF Drum Shoe Cage Dia.(mm): 0.00
Disc Construction: INTEGRAL CAST, VENTED	RF Drum Shoe Cage Dia.(mm): 0.00
Front Brake Dia.(mm): 295.83	LF Drum Dia. RESET(mm): 0.00
Fr Disc Thickness(mm): 27.97	RF Drum Dia. RESET(mm): 0.00
Lining Construction: Bonded	
FRONT BRAKE COMPONENT DIMENSIONS AND CODES:	
Inboard (Leading)	Outboard (Trailing)
Width(mm): 53.29	Width(mm): 53.31
Length(mm): 127.20	Length(mm): 127.23
Thickness(mm): 11.61	Thickness(mm): 11.58
Lining Code/Color: VC030H FF	Lining Code/Color: VC030H FF
Hyd. Piston Dia.(mm): 45.34	

PL015\INTRAPOS\SETUP + SETUP2

# DATA SHEET 1 - (CONTINUED)

## REAR SYSTEM

## BRAKE COMPONENT MATERIALS AND CONSTRUCTION:

BRAKE TYPE: DISC	Material: CAST IRON
Drum Construction: N/A	LR Drum Shoe Cage Dia. (mm): 0.00
Disc Construction: INTEGRAL CAST	RR Drum Shoe Cage Dia. (mm): 0.00
Lining Construction: BONDED	LR Drum Dia. RESET(mm): 0.00
Rear Brake Dia. (mm): 301.57	RR Drum Dia. RESET(mm): 0.00
Rr Disc Thickness(mm): 17.98	

Lining Construction: Bonded

### REAR BRAKE COMPONENT DIMENSIONS AND CODES:

Inboard (Leading)	Outboard (Trailing)
Width(mm): 40.44	Width (mm): 40.44
Length(mm): 89.43	Length (mm): 89.43
Thickness(mm): 8.31	Thickness (mm): 8.31
Lining Code/Color: D6306 EF NBK	Lining Code/Color: D6306 EF NBK
Hyd Piston Dia (mm): 42.88	

### OTHER COMPONENT INFORMATION:

Friction-type Park Brake: N/A  
Non-Service Brake Type  
Parking Brake: FOOT-OPERATED

NOTE: If at any time after the test series has begun, any brake system part requires replacement or the brake system requires adjustments other than permitted in burnish and reburnish procedures, discontinue testing and notify the COTR immediately.

Technician:

Karen Easterday  
KAREN EASTERDAY

Date:

1-18-08

Quality Assurance:

Randy Landes  
RANDY LANDES

**3.0 SUMMARY OF TESTING**

		Specification and Limit				TEST RESULTS (In compliance if one stop meets requirement)			
TEST	Loading Condition	Speed (km/h)	Min. Pedal Force (N)	Max. Pedal Force (N)	Stopping Distance Requirement (m)	Shortest Stop Min. Pedal Force (N)***	Shortest Stop Max. Pedal Force Newtons (Average – N)	Shortest Stop Stopping Distance (m) (Corrected)	PASS Fail
Equipment Requirements					Specified Equipment	Vehicle contains specified equipment			Pass
Vehicle Maximum Speed	LLVW	NA				189.9 km/h avg.			NA
Burnish	GVWR	80				200, 80 - 0 km/h stops @ 3.0 mpsps			NA
Wheel Lockup Sequence w/o ABS	GVWR				Lockup of front wheels prior to rear	ABS equipped – not required.			NA
Wheel Lockup Sequence w/o ABS	LLVW					ABS equipped – not required.			NA
Adhesion Utilization w/o ABS	LLVW							Rear axle adhesion utilization curve below specified value	ABS equipped – not required.
Adhesion Utilization w/o ABS	GVWR	ABS equipped – not required.							NA
Cold Effectiveness	GVWR	100	65	500	70	5	448.0	50.1	Pass
High Speed Effectiveness	GVWR	152.0	65	500	spd. depend. – 169.9	5	478.7	111.1	Pass
Stops with Engine Off	GVWR	100	65	500	70	5	473.3	52.4	Pass
Cold Effectiveness	LLVW	100	65	500	70	5	490.9	41.5	Pass
High Speed Effectiveness	LLVW	152.0	65	500	spd. depend. – 169.9	5	493.5	97.2	Pass
Failed Antilock	LLVW	100	65	500	85	5	164.6	55.1	Pass
Failed Proportioning Valve	LLVW	100	65	500	110	5	NA	NA	NA
Failed Hydraulic Circuit #1	LLVW	100	65	500	168	5	446.3	85.5	Pass
Failed Hydraulic Circuit #2	LLVW	100	65	500	168	5	411.3	87.5	Pass
Failed Hydraulic Circuit #1	GVWR	100	65	500	168	5	446.8	88.8	Pass
Failed Hydraulic Circuit #2	GVWR	100	65	500	168	5	466.2	101.1	Pass
Failed Antilock	GVWR	100	65	500	85	5	289.3	49.7	Pass
Failed Proportioning Valve	GVWR	100	65	500	110	5	NA	NA	NA
Regenerative Brake System (RBS) Failure	GVWR	100	65	500	168	5	NA	NA	NA
Electromotive Force (EMF) – Battery Failure	GVWR	100	65	500	70	5	NA	NA	NA
Power Brake Unit Failure	GVWR	100	65	500	168	5	494.5	130.1	Pass
Parking Brake - Uphill	GVWR	-	-	500	Hold for 5 min.?	NA	466.0 {Prk Br}	Yes-Holds	Pass
Parking Brake - Downhill	GVWR	-	-	500	Hold for 5 min.?	NA	417.1 {Prk Br}	Yes-Holds	Pass
Heating Snubs	GVWR	120-	NA	NA	15 Snubs- 3.0 mpsps	5	31 Vis. Avg.	NA	NA
Hot Performance Stop #1	GVWR	100	65	359 avg	76.7	5	410.7 (316.2)	46.5	Pass
Hot Performance Stop #2	GVWR	100	65	500	89	5	433.7 (304.8)	44.6	Pass
Brake Cooling	GVWR	50	NA	NA	4 Stops - 3.0 mpsps	5	35 Vis. Avg.	NA	NA
Recovery Performance Stop #1	GVWR	100	65	359 avg	One of the two stops between 36.7 and 67.2 meters.	5	338.3 (257.2)	45.4	Pass
Recovery Performance Stop #2	GVWR	100	65	359 avg		5	495.1 (301.1)	43.9	
Final Inspection-Brake Integrity	Check components for detachment, fracture or lubricants.					No detachments or fractures-normal appear. & colr.			Pass
Final Inspection-Reservoirs/Warning Indicators	Master cylinder or brake power reservoir shall meet the volume and label requirements of S5.4.2 and S5.4.3.					Brake system has sufficient capacity and indicators are in compliance.			Pass

\*\*\* Note: The Shortest Stop Minimum Pedal Force represents the minimum force value required to engage the data acquisition's recording mode.

# DATA SHEET 3 - VEHICLE WEIGHT

VEHICLE: 2008 MAZDA CX-7 SPORT FWD

NHTSA No. C85400 Date: 11/16/07

Tire Pressure(cold): Front (kpa) 221 Rear (kpa) 221

Odometer: Start 71 MI. End 541 MI.

Scale(s) Used: TRC Scales

NOTE: GVWR, LLVW and axle weights to be measured within +0% and -1%.

## GVWR/GAWR INFORMATION

(From Veh. Certification Label)

GVWR(Kg): 2168

GAWR Front(Kg): 1150

GAWR Rear(Kg): 1022

## UNLOADED VEHICLE WEIGHT(UVW)

L Front(Kg): 503 L Rear(Kg): 339

R Front(Kg): 496 R Rear(Kg): 328

T Front(Kg): 999 T Rear(Kg): 667

Total UVW(Kg): 1666

## TARGET LIGHT LOADED WEIGHT(LLVW):

## ACTUAL LIGHT LOADED WEIGHT(LLVW):

NOTE 1: LLVW = UVW+181.4Kg

NOTE 2: Weight distributed in front passenger seat area.

NOTE 3: Neither axle load at LLVW less than at UVW; ballast as required.

L Front(Kg): 550 L Rear(Kg): 387

R Front(Kg): 543 R Rear(Kg): 369

T Front(Kg): 1093 T Rear(Kg): 754

Total LLVW(Kg): 1847

L Front(Kg): 554 L Rear(Kg): 387

R Front(Kg): 539 R Rear(Kg): 367

T Front(Kg): 1093 T Rear(Kg): 754

Total Actual Test LLVW(Kg): 1847

Load: Driver/Observer 73(Kg) + Instru. 41(Kg) + Ballast 67(Kg) = 181(Kg)

## FULLY LOADED TEST WEIGHT (ACTUAL GVWR)

NOTE 1: Vehicle loaded so axle loads proportional to GAWR shown previously.

NOTE 2: But no axle weight to be less than at LLVW.

NOTE 3: If weight on any axle at LLVW exceeds the axle's proportional share of the GVWR, the load required to reach GVWR is placed so that the weight on that axle remains the same as at LLVW.

L Front(Kg): 572 L Rear(Kg): 514

R Front(Kg): 575 R Rear(Kg): 506

T Front(Kg): 1147 T Rear(Kg): 1020

Total Fully Loaded GVWR(Kg): 2167

Load: Driver/Observer 73(Kg) + Instru. 41(Kg) + Ballast 387(Kg)= 501(kg)

Technician:

KAREN EASTERDAY

Date:

1-18-08

Quality Assurance:

RANDY LANDES

## DATA SHEET 4 - EQUIPMENT REQUIREMENTS (S5)

### SERVICE BRAKE SYSTEM (S5.1)

Vehicle equipped with a service brake system acting on all wheels? YES

Wear Adjustment (S5.1.1):

Service Brakes are compensated for wear by means of a system of automatic adjustment? YES

Describe: AUTOMATIC CLEARANCE TAKE-UP.

Wear Status (S5.1.2):

Wear status of service brakes is indicated by:

(A) Acoustic or optical device? YES

Describe: METAL TAB EMITS HIGH FREQUENCY SQUEAL WHEN WORN.

(B) Visual check outside or under vehicle? YES

Describe: FRONT & REAR: LOOK THROUGH CALIPER.

### PARKING BRAKE SYSTEM (S5.2)

Vehicle equipped with a parking brake system of a friction type with solely mechanical means to retain engagement? YES

### CONTROLS (S5.3)

(A) Service brakes activated by means of a foot control? YES

(B) Parking brake control is independent of the service brake control? YES

(C) Parking brake control is hand or foot operated? YES

(D) ABS, if equipped, cannot be manually disabled? YES

DATA INDICATES COMPLIANCE: YES

COMMENTS: NONE.

Tester/Technician: Karen Easterday  
KAREN EASTERDAY

Date: 1-18-09

Quality Assurance: Randy Landes  
RANDY LANDES

# DATA SHEET 5 - VEHICLE MAX SPEED

VEHICLE: 2008 MAZDA CX-7 SPORT FWD

NHTSA No. C85400

Date: 11/16/07

Ambient Temperature: 46°F

Wind Velocity: 16(MPH)

Road PFC: 1.01

Wind Direction: 153°

Odometer: Start 89(mi) End 104(mi)

TEST WEIGHT: Total (Kg): 1847

Front (Kg): 1093

Rear (Kg): 754

ESTABLISH VEHICLE MAXIMUM SPEED

VEHICLE LOAD: LLVW

IBT: N/A

GEAR: Drive

DECEL RATE: N/A

PEDAL FORCE: N/A

WHEEL LOCKUP: N/A

TEST SPEED: Maximum attainable from

INTERVAL: N/A

a standing start in 3.2 km.

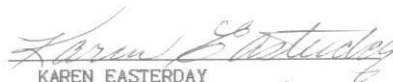
1. Ballast Vehicle to LLVW
2. Accelerate at a maximum rate from a standing start for a distance of 3.2 km on a level surface.
3. Repeat in opposite direction.
4. Record speed attained in each direction and use the average of the two runs.

	DIRECTION	MAX SPEED (km/h)		Time 0 - 100 KPH (seconds)
		Visual	Recorded	
Run No. 1	South	191 kph	190.4	9.74
Run No. 2	North	190 kph	189.5	10.43

AVERAGE = 189.9 km/h

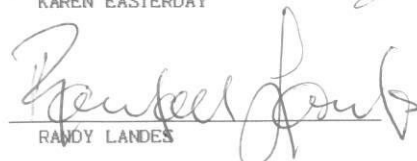
COMMENTS: INV DATA, Section 0001, 11/19/07, 14:48:14

Tester/Technician:

  
KAREN EASTERDAY

Date: 1-18-08

Quality Assurance:

  
RANDY LANDES

Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

Transportation Research Center, Inc.  
 10820 State Route 347  
 East Liberty, Ohio 43319  
 (937)666-2011 www.trcpg.com

Date Tested: 11/19/07

## DATA SHEET 6 - BURNISH AT GVWR

Testing Conditions: INV DATA, Section 0002, 11/19/07, 16:12:50

Weather Conditions: 59°F Wind: 19 mph 231°

Start Odo.: 106 End Odo.: 363

### Schedule:

Initial Brake Temperature Less Than 100°C  
 Initial Speed 80 km/h to zero  
 200 stops with transmission in gear

### Performance Requirements:

Interval between runs: Time necessary to reduce IBT to 100 C° or 2 km distance, whichever occurs first.  
 Constant decel rate: 3.0 m/s<sup>2</sup>  
 Pedal force adjusted to maintain constant decel.  
 No Lock-Up allowed longer than 0.1 sec above 15 km/h  
 Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	AVG. DECEL (m/sec <sup>2</sup> )
1	79.96	107	106	70	71	77.76	41.65	2.97
10	80.11	111	127	67	70	50.38	33.41	2.76
20	80.90	111	124	66	68	54.31	35.64	2.90
30	80.31	110	123	67	68	50.40	35.54	2.91
40	81.35	107	122	64	66	50.38	33.98	2.84
50	80.73	108	127	66	66	62.37	37.79	2.93
60	80.40	115	122	67	67	51.74	37.02	2.90
70	80.53	107	119	64	65	50.40	36.23	2.70
80	80.54	112	121	66	66	54.01	36.73	2.89
90	80.72	114	119	66	67	50.40	34.23	2.80
100	80.30	107	119	63	64	53.25	36.65	2.91
110	79.96	119	134	63	63	57.58	34.82	2.86
120	80.45	126	136	64	66	58.66	35.76	2.77
130	79.51	123	129	63	65	50.38	34.53	2.82
140	80.25	115	128	62	62	60.15	38.43	2.93
150	80.08	123	127	64	64	52.11	36.55	2.85
160	80.83	118	126	64	63	50.40	36.18	2.86
170	80.26	110	128	64	58	51.59	37.42	2.82
180	80.23	120	123	62	63	56.51	38.56	2.99
190	80.21	116	123	63	61	53.87	36.95	2.96
200	79.27	111	127	64	59	52.11	36.65	2.89

COMMENTS: THIS VEHICLE ABS EQUIPPED. DATA SHEETS 7-10 NOT INCLUDED.

## BRAKE ADJUSTMENT

### Schedule:

Adjust service brakes; record procedure and amount adjusted.

Left Front: DISC DISC BRAKE NO ADJUSTMENT REQUIRED  
 Right Front: DISC DISC BRAKE NO ADJUSTMENT REQUIRED  
 Left Rear: DISC DISC BRAKE NO ADJUSTMENT REQUIRED.  
 Right Rear: DISC DISC BRAKE NO ADJUSTMENT REQUIRED.  
 DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDES Date: 12/31/07



Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

Transportation Research Center, Inc.  
 10820 State Route 347  
 East Liberty, Ohio 43319  
 (937)666-2011 www.trcpg.com

Date Tested: 11/20/07

## DATA SHEET 11 - COLD EFFECTIVENESS AT GVWR

Testing Conditions: INV DATA, Section 0015, 11/20/07, 13:21:06

Weather Conditions: 59°F Wind: 13 mph 219° Start Odo.: 370 End Odo.: 380

### Schedule:

Initial Brake Temperature 65 - 100 C  
 Initial Speed 100 km/h to zero  
 6 stops with transmission in neutral

### Performance Requirements:

One Stop with:  
 Stopping Distance less than 70m  
 Pedal force between 65N and 500N  
 No Lock-Up allowed longer than 0.1 sec above 15 km/h  
 Vehicle Must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	(SAE 299)	PEDAL	PEDAL	DECEL	DECEL
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec <sup>2</sup> )	(m/sec <sup>2</sup> )
1	99.51	74	72	46	47	51.1	51.6	454.35	338.51	10.88	7.08
2	99.81	94	90	48	46	50.0	50.1	448.04	358.51	11.11	7.44
3	99.01	79	78	51	49	51.1	52.1	503.91	386.04	11.40	7.19
4	100.17	87	87	44	43	51.2	51.1	447.80	367.27	11.12	7.28
5	99.68	83	82	36	38	51.4	51.7	482.99	353.07	11.29	6.87
6	99.78	87	87	39	38	52.0	52.2	461.23	368.80	10.43	7.09

STOP	DRIVER VEHICLE STOP COMMENTS			
#	(Wheel Lock up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

Corrected Distances are used to determine shortest stopping distance.

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDES Date: 12/31/07

Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

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## DATA SHEET 12 - HIGH SPEED EFFECTIVENESS AT GVWR

Testing Conditions: INV DATA, Section 0020, 11/21/07, 13:28:07

Weather Conditions: 63°F Wind: 14 mph 198° Start Odo: 388 End Odo: 399

### Schedule:

Initial Brake Temperature: 65-100°C  
 Initial Speed: 80% max km/h, not greater than 160km/h  
 6 stops with transmission in gear  
 Target Initial Speed: 151.95 kph

### Performance Requirements:

One Stop with:  
 Stopping Distance less than: 169.9 meter  
 Pedal force between 65N and 500N  
 No Lock-Up allowed longer than 0.1 sec above 15 km/h  
 Vehicle Must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	(SAE 299)	PEDAL	PEDAL	DECEL	DECEL
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec <sup>2</sup> )	(m/sec <sup>2</sup> )
1	150.02	79	78	47	47	108.9	111.8	463.11	392.15	13.01	7.73
2	151.29	80	77	43	46	111.8	112.8	491.82	401.89	11.95	7.71
3	149.75	96	87	62	58	107.9	111.1	478.71	389.55	12.96	7.60
4	152.00	82	71	41	33	115.9	115.9	471.79	391.01	12.14	7.54
5	151.33	93	81	41	39	112.8	113.7	473.84	399.67	11.86	7.65
6	151.13	72	64	32	34	112.0	113.2	465.88	380.80	12.47	7.52

STOP	DRIVER VEHICLE STOP COMMENTS			
#	(Wheel Lock up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDES Date: 12/31/07

Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

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### DATA SHEET 13 - STOPS WITH ENGINE OFF AT GVWR

Testing Conditions: INV DATA, Section 0025, 11/21/07, 14:46:22

Weather Conditions: 63°F Wind: 19 mph 205° Start Odo.: 400 End Odo.: 409

#### Schedule:

Initial Brake Temperature: 65-100°C  
 Initial Speed 100 km/h to zero  
 6 stops with transmission in neutral

#### Performance Requirements:

One Stop with:  
 Stopping Distance less than 70m  
 Pedal force between 65N and 500N  
 No Lock-Up allowed longer than 0.1 sec above 15 km/h  
 Vehicle Must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	(SAE 299)	PEDAL	PEDAL	DECEL	DECEL
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec²)	(m/sec²)
1	98.32	92	85	41	38	55.0	56.9	422.67	341.37	8.66	6.41
2	99.42	94	88	41	38	57.1	57.8	446.73	363.34	10.06	6.42
3	99.49	93	87	41	37	54.0	54.6	496.07	401.20	10.43	6.90
4	99.96	82	77	44	42	54.7	54.7	462.44	379.83	9.41	6.36
5	99.95	94	93	44	42	52.3	52.4	473.25	382.73	13.56	7.10
6	99.38	86	83	40	36	52.3	52.9	504.09	401.40	15.20	6.89

STOP	DRIVER VEHICLE STOP COMMENTS		
#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)		
1	-	NOX	SOUTH YES
2	-	NOX	SOUTH YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES
5	-	NOX	SOUTH YES
6	-	NOX	SOUTH YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDERS Date: 12/31/07

Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

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Date Tested: 11/23/07

## DATA SHEET 14 - COLD EFFECTIVENESS AT LLVW

Testing Conditions: INV DATA, Section 0030, 11/23/07, 13:10:28

Weather Conditions: 34°F Wind: 7 mph 306° Start Odo.: 418 End Odo.: 424

### Schedule:

Initial Brake Temperature: 65-100°C  
 Initial Speed 100 km/h to zero  
 6 stops with transmission in neutral

### Performance Requirements:

One Stop with:  
 Stopping Distance less than 70m  
 Pedal force between 65N and 500N  
 No Lock-Up allowed longer than 0.1 sec above 15 km/h  
 Vehicle Must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT		CORRECTED	MAX.	AVG.		
#	SPD	FRONT	FRONT	REAR	REAR	ACTUAL	DISTANCE	PEDAL	PEDAL	MAX.	AVG.
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(SAE 299)	FORCE	FORCE	DECEL	DECEL
								(N)	(N)	(m/sec <sup>2</sup> )	(m/sec <sup>2</sup> )
1	101.21	74	77	47	47	47.8	46.6	473.67	351.22	10.77	7.57
2	99.49	93	93	43	43	44.0	44.4	459.94	352.11	12.32	7.72
3	100.37	87	86	31	32	44.4	44.1	462.39	366.53	11.72	7.79
4	99.69	92	88	29	29	44.2	44.5	473.07	371.65	14.94	7.84
5	98.99	95	91	39	40	42.5	43.4	499.93	431.50	16.13	9.20
6	100.17	87	88	29	29	41.6	41.5	490.93	398.90	13.82	8.11

STOP	DRIVER VEHICLE STOP COMMENTS		
#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)		
1	-	NOX	SOUTH YES
2	-	NOX	SOUTH YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES
5	-	NOX	SOUTH YES
6	-	NOX	SOUTH YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDERS Date: 12/31/07

Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400 Transportation Research Center, Inc.  
 Make: MAZDA 10820 State Route 347  
 Model: CX-7 SPORT FWD East Liberty, Ohio 43319  
 Body Style: 4DR HATCHBK MPV (937)666-2011 www.trcpg.com  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa) Date Tested: 11/23/07

## DATA SHEET 15 - HIGH SPEED EFFECTIVENESS AT LLVW

Testing Conditions: INV DATA, Section 0035, 11/23/07, 13:58:39

Weather Conditions: 33°F Wind: 11 mph 319° Start Odo.: 425 End Odo.: 433

### Schedule:

Initial Brake Temperature: 65-100°C  
 Initial Speed: 80± max km/h  
 6 stops with transmission in gear

### Performance Requirements:

One Stop with:  
 Stopping Distance less than 169.9m  
 Pedal force between 65N and 500N  
 No Lock-Up allowed longer than 0.1 sec above 15 km/h  
 Vehicle Must stay in lane of 3.5m

		LEFT	RIGHT	LEFT	RIGHT		CORRECTED	MAX.	AVG.		
STOP	INIT	FRONT	FRONT	REAR	REAR	ACTUAL	DISTANCE	PEDAL	PEDAL	MAX.	AVG.
#	SPD	IBT	IBT	IBT	IBT	DISTANCE	(SAE 299)	FORCE	FORCE	DECEL	DECEL
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec²)	(m/sec²)
1	150.99	83	83	24	26	96.6	97.9	498.82	406.35	14.78	8.52
2	150.81	93	87	22	23	96.3	97.8	488.80	415.15	14.76	8.83
3	150.80	88	79	20	20	96.8	98.2	483.36	392.59	17.52	8.50
4	150.65	82	81	17	18	96.0	97.6	493.45	412.03	12.83	8.58
5	152.31	77	78	20	18	96.5	96.1	504.75	412.68	13.28	8.51
6	153.69	87	91	23	22	100.7	98.4	466.82	388.56	13.24	8.59

STOP	DRIVER VEHICLE STOP COMMENTS			
#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDES Date: 12/31/07

Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

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## DATA SHEET 16 - ANTILOCK FUNCTIONAL FAILURE AT LLVW

Testing Conditions: INV DATA, Section 0040, 11/23/07, 15:16:33

Weather Conditions: 33°F Wind: 7 mph 308° Start Odo.: 434 End Odo.: 440

### Schedule:

Initial Brake Temperature: 65-100°C  
 Initial Speed 100 km/h to zero  
 6 stops with transmission in neutral

### Performance Requirements:

One Stop with:  
 Stopping Distance less than 85m  
 Pedal force between 65N and 500N  
 No Lock-Up allowed longer than 0.1 sec above 15 km/h  
 Vehicle Must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	(SAE 299)	PEDAL	PEDAL	DECEL	DECEL
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec <sup>2</sup> )	(m/sec <sup>2</sup> )
1	101.32	93	94	32	33	58.8	57.3	141.12	110.06	9.52	6.19
2	99.35	84	82	31	33	60.2	61.0	155.17	100.46	7.92	5.87
3	100.15	94	94	43	44	57.3	57.1	204.63	111.47	10.03	6.05
4	100.27	81	81	37	38	58.0	57.7	187.81	111.52	8.40	6.17
5	99.16	96	95	47	49	54.2	55.1	164.59	100.39	9.44	6.41
6	99.59	84	84	38	41	57.5	57.9	138.57	103.31	14.42	6.21

STOP	DRIVER VEHICLE STOP COMMENTS			
#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

How was the ABS failure induced: REMOVED 20 AMP FUSE FROM FUSEBOX UNDER LEFT SIDE OF HOOD.

Is brake system indicator lamp activated: YES (X) NO ( )

Vehicle equipped with an ABS integral variable proportioning valve. Data Sheet 17 not included.

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDES Date: 12/31/07

Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

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## DATA SHEET 18 - HYDRAULIC CIRCUIT FAILURE #1 AT LLVW

Testing Conditions: INV DATA, Section 0050, 11/27/07, 08:52:09

Weather Conditions: 33°F Wind: 16 mph 237° Start Odo.: 449 End Odo.: 454

Method of simulating failure: Disconnected Brake Line @ M/C Front Port

System Portion Failed: LF & RR

### Schedule:

Initial Brake Temperature: 65-100°C  
 Initial Speed 100 km/h to zero  
 4 stops with transmission in neutral

### Performance Requirements:

One Stop with:  
 Stopping Distance less than 168m  
 Pedal force between 65N and 500N  
 No Lock-Up allowed longer than 0.1 sec above 15 km/h  
 Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD	LEFT FRONT IBT	RIGHT FRONT IBT	LEFT REAR IBT	RIGHT REAR IBT	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec <sup>2</sup> )	AVG. DECEL (m/sec <sup>2</sup> )
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec <sup>2</sup> )	(m/sec <sup>2</sup> )
1	100.23	13	84	48	8	87.2	86.8	426.16	326.34	8.93	4.35
2	99.40	13	82	44	7	86.1	87.1	404.27	299.70	10.24	4.31
3	99.46	12	94	50	7	85.8	86.8	423.56	325.77	9.53	4.43
4	100.44	10	85	36	7	86.3	85.5	446.29	316.89	8.75	4.36

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES

Force Needed to Activate Brake Failure Lamp (N): N/A  
 Fluid Removed (mL) to Activate Brake Failure Lamp: 134 ML

Is brake system indicator lamp activated: YES (X) NO ( )

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDES Date: 12/31/07

Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

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Date Tested: 11/27/07

## DATA SHEET 19 - HYDRAULIC CIRCUIT FAILURE #2 AT LLVW

Testing Conditions: INV DATA, Section 0055, 11/27/07, 10:41:40

Weather Conditions: 37°F Wind: 16 mph 233° Start Odo.: 456 End Odo.: 459

Method of simulating failure: Disconnected Brake Line @ M/C Rear Port

System Portion Failed: RF & LR

### Schedule:

Initial Brake Temperature 65-100°C  
 Initial Speed 100 km/h to zero  
 4 stops with transmission in neutral

### Performance Requirements:

One Stop with:  
 Stopping Distance less than 168m  
 Pedal force between 65N and 500N  
 No Lock-Up allowed longer than 0.1 sec above 15 km/h  
 Vehicle Must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	(SAE 299)	PEDAL	PEDAL	DECEL	DECEL
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec <sup>2</sup> )	(m/sec <sup>2</sup> )
1	99.27	97	22	13	62	86.3	87.5	411.27	347.29	6.74	4.42
2	98.94	91	16	9	42	88.7	90.7	454.18	381.89	6.88	4.25
3	99.37	84	13	7	32	91.1	92.3	496.39	395.22	6.21	4.03
4	100.13	83	12	7	29	91.9	91.6	456.65	407.21	6.55	4.12

STOP	DRIVER VEHICLE STOP COMMENTS			
#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES

Force Needed to Activate Brake Failure Lamp (N): N/A  
 Fluid Removed (mL) to Activate Brake Failure Lamp: 134 ML

Is brake system indicator lamp activated: YES (X) NO ( )

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDES Date: 12/31/07



Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

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## DATA SHEET 20 - HYDRAULIC CIRCUIT FAILURE #1 AT GVWR

Testing Conditions: INV DATA, Section 0060, 11/27/07, 13:50:48

Weather Conditions: 43°F Wind: 21 mph 287° Start Odo.: 469 End Odo.: 480

Method of simulating failure: Disconnected Brake Line @ M/C Front Port

System Portion Failed: LF & RR

### Schedule:

Initial Brake Temperature 65-100°C  
 Initial Speed 100 km/h to zero  
 6 stops with transmission in neutral

### Performance Requirements:

One Stop with:  
 Stopping Distance less than 168m  
 Pedal force between 65N and 500N  
 No Lock-Up allowed longer than 0.1 sec above 15 km/h  
 Vehicle Must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	(SAE 299)	PEDAL	PEDAL	DECEL	DECEL
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec <sup>2</sup> )	(m/sec <sup>2</sup> )
1	100.09	26	85	64	18	92.1	91.9	416.73	293.89	9.23	4.01
2	99.09	21	90	63	16	91.0	92.7	374.76	298.39	11.24	4.05
3	100.26	19	94	58	16	93.7	93.3	449.30	298.19	11.27	4.02
4	100.53	18	84	59	14	89.7	88.8	446.81	351.54	8.54	4.09

STOP	DRIVER VEHICLE STOP COMMENTS			
#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES

Is brake system indicator lamp activated: YES (X) NO ( )

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN BASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDES Date: 12/31/07

Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

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## DATA SHEET 21 - HYDRAULIC CIRCUIT FAILURE #2 AT GVWR

Testing Conditions: INV DATA, Section 0065, 11/27/07, 11:33:16

Weather Conditions: 39°F Wind: 21 mph 226° Start Odo.: 462 End Odo.: 466

Method of simulating failure: Disconnected Brake Line @ M/C Rear Port

System Portion Failed: RF & LR

### Schedule:

Initial Brake Temperature 65-100°C  
 Initial Speed 100 km/h to zero  
 4 stops with transmission in neutral

### Performance Requirements:

One Stop with:  
 Stopping Distance less than 168m  
 Pedal force between 65N and 500N  
 No Lock-Up allowed longer than 0.1 sec above 15 km/h  
 Vehicle Must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	(SAE 299)	PEDAL	PEDAL	DECEL	DECEL
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec <sup>2</sup> )	(m/sec <sup>2</sup> )
1	100.67	69	14	10	29	102.5	101.1	466.20	396.82	6.15	3.75
2	99.54	67	12	8	28	103.0	104.0	470.77	407.29	5.53	3.70
3	100.38	85	12	8	36	103.4	102.6	492.26	413.96	5.47	3.62
4	100.58	89	12	8	35	103.6	102.4	483.73	415.99	5.66	3.69

STOP	DRIVER VEHICLE STOP COMMENTS			
#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES

Is brake system indicator lamp activated: YES (X) NO ( )

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDES Date: 12/31/07

Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

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Date Tested: 11/28/07

## DATA SHEET 22 - ANTILOCK FUNCTIONAL FAILURE AT GVWR

Testing Conditions: INV DATA, Section 0070, 11/28/07, 10:26:08

Weather Conditions: 35°F Wind: 9 mph 138° Start Odo.: 489 End Odo.: 494

### Schedule:

Initial Brake Temperature 65-100°C  
 Initial Speed 100 km/h to zero  
 6 stops with transmission in neutral

### Performance Requirements:

One Stop with:  
 Stopping Distance less than 85m  
 Pedal force between 65N and 500N  
 No Lock-Up allowed longer than 0.1 sec above 15 km/h  
 Vehicle Must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	(SAE 299)	PEDAL	PEDAL	DECEL	DECEL
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec <sup>2</sup> )	(m/sec <sup>2</sup> )
1	99.17	75	81	52	51	58.8	59.8	179.68	124.75	8.86	6.53
2	99.48	88	96	58	56	49.2	49.7	289.26	146.22	11.13	7.20
3	100.64	77	85	44	41	52.2	51.5	264.48	125.84	10.03	7.11
4	100.35	86	95	51	47	56.9	56.5	160.56	118.61	9.25	6.66
5	99.40	73	84	39	36	54.4	55.0	183.36	130.34	10.25	6.87
6	99.59	79	87	41	37	51.8	52.2	203.47	129.10	9.64	6.86

STOP	DRIVER VEHICLE STOP COMMENTS			
#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

How was the ABS failure induced: REMOVED 20 AMP FUSE FROM FUSEBOX UNDER LEFT SIDE OF HOOD.

Is brake system indicator lamp activated: YES (X) NO ( )

Vehicle equipped with an ABS integral variable proportioning valve. Data Sheet 23 not included.

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDES Date: 12/31/07

Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

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Date Tested: 11/28/07

## DATA SHEET 24 - BRAKE POWER UNIT OR PWR ASSIST UNIT IN/OP AT GVWR

Testing Conditions: INV DATA, Section 0080, 11/28/07, 11:36:19

Weather Conditions: 39°F Wind: 16 mph 159° Start Odo.: 497 End Odo.: 504

Failure Simulation: Disconnect primary source of power.

Method of rendering inoperative: Removed Engine Vacuum Hose at Booster

### Schedule:

Initial Brake Temperature 65-100°C  
 Initial Speed 100 km/h to zero  
 6 stops with transmission in neutral

### Performance Requirements:

One Stop with:  
 Stopping Distance less than 168m  
 Pedal force between 65N and 500N  
 No Lock-Up allowed longer than 0.1 sec above 15 km/h  
 Vehicle Must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	(SAE 299)	PEDAL	PEDAL	DECEL	DECEL
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec <sup>2</sup> )	(m/sec <sup>2</sup> )
1	99.94	79	84	51	49	136.2	136.4	499.93	475.52	4.15	2.92
2	99.67	88	94	56	51	130.6	131.5	497.11	463.48	4.62	3.01
3	100.09	71	78	44	37	136.8	136.5	496.47	465.41	4.16	2.90
4	98.92	84	95	52	45	122.9	125.6	512.79	463.23	4.51	3.14
5	99.96	67	78	37	34	130.0	130.1	494.49	466.12	7.84	3.03
6	99.69	73	78	38	33	135.0	135.8	502.87	467.38	4.15	2.98

STOP DRIVER VEHICLE STOP COMMENTS  
 # (Wheel Lock-Up - Direction of Stop - Stay in Lane)

STOP	DRIVER VEHICLE STOP COMMENTS
#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)
1	NOX SOUTH YES
2	NOX SOUTH YES
3	NOX SOUTH YES
4	NOX SOUTH YES
5	NOX SOUTH YES
6	NOX SOUTH YES

Is the brake system indicator lamp activated: YES ( ) NO (X)

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDES Date: 12/31/07

Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

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Date Tested: 11/30/07

## DATA SHEET 25 - PARKING BRAKE AT GVWR

Testing Conditions: INV DATA, Section 0085, 11/30/07, 10:34:54

Parking brake: AUTOMATIC TR Non-service type: FOOT-OPERATED

Service type: N/A

Weather Conditions: 37°F Wind: 20 mph 238°

Start Odo.: 510

End Odo.: 510

Test Weight: Total:2167kg

Front:1147kg

Rear:1020kg

Schedule:

Initial Brake Temperature <100°C or (Ambient temp.  
 if non-service brake type materials)

Loaded to GVWR with transmission in neutral

Drive onto 20% slope in forward and reverse directions.

Performance Requirements:

Up to Three Applies in each direction:

Parking brake must hold the vehicle stationary  
 in both directions for 5 minutes each.

Pedal force: Hand control: <400 N

Foot control: <500 N

NOTE: For vehicles with parking brake systems not utilizing the  
 service brake friction elements, the friction elements of such systems  
 are to be burnished prior to parking brake tests according to the  
 manufacturer's published recommendation as furnished to the purchaser.  
 If no recommendations are furnished, test the system in an unburnished  
 condition. If recommendations are furnished, record method used.

	MAX SERVICE FORCE	MAX P-BRAKE FORCE	LEFT REAR IBT	RIGHT REAR IBT	AVG REAR IBT		DRIVER VEHICLE STOP COMMENTS			
APPLY	(N)	(N)	(°C)	(°C)	(°C)		(Direction of Stop (Up/Down) - Brake holds/fails)			
#	(N)	(N)	(°C)	(°C)	(°C)					
1	49.7	466.0	37	41	39.2	-	0 REAPPLY	UPHILL	HOLDS	20%
2	49.4	417.1	20	26	22.8	-	0 REAPPLY	DOWNHILL	HOLDS	20%

Is brake system indicator lamp activated: YES (X) NO ( )

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 12/15/07

Approving Laboratory Official: RANDY LANDES

Date: 12/31/07

Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

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## DATA SHEET 26 - HEATING SNUBS AT GVWR

Testing Conditions: INV DATA, Section 0090, 11/30/07, 11:58:29

### Schedule:

Conduct 15 snubs from 120 Km/h or 80% Vmax, whichever is slower, to 1/2 of initial speed.  
 Attain required decel in 1 second and maintain that decel.  
 Interval between snubs is 45 seconds and WOT to initial speed.

### Performance Requirements:

Initial IBT for first snub is 55-65°C  
 Maintain 3.0 m/s/s deceleration  
 Vehicle Must stay in lane of 3.5m

SNUB #	AVG. DECEL (m/sec <sup>2</sup> )	Time Between Snubs (second)	AVG. PEDAL FORCE (N)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	INIT SPD (kph)
1	3.05	--NA--	40.06	60	63	38	43	119.32
2	3.18	45	37.34	94	96	62	69	121.05
3	3.04	45	29.66	136	136	86	95	119.78
4	2.97	46	27.65	167	169	104	112	120.70
5	2.91	44	26.62	187	197	120	124	120.58
6	2.89	45	26.99	204	224	134	135	120.80
7	2.88	45	26.91	221	242	146	144	119.18
8	2.89	45	26.59	234	254	154	154	120.40
9	2.91	45	28.67	248	266	163	164	120.56
10	2.88	47	31.74	258	267	168	173	121.63
11	2.82	43	29.83	277	268	174	182	120.81
12	2.83	46	32.28	285	273	183	192	120.75
13	2.80	44	31.69	291	283	193	199	120.78
14	2.78	45	29.26	285	293	200	203	120.04
15	2.91	45	32.80	282	301	207	204	121.57

STOP #	DRIVER VEHICLE SNUB COMMENTS			
	(Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	NORTH	YES
2	-	NOX	EAST	YES
3	-	NOX	EAST	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES
7	-	NOX	WEST	YES
8	-	NOX	NORTH	YES
9	-	NOX	NORTH	YES
10	-	NOX	NORTH	YES
11	-	NOX	NORTH	YES
12	-	NOX	EAST	YES
13	-	NOX	SOUTH	YES
14	-	NOX	SOUTH	YES
15	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDES Date: 12/31/07

Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

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Date Tested: 11/30/07

## DATA SHEET 27 - HOT PERFORMANCE AT GVWR

Testing Conditions: INV DATA, Section 0095, 11/30/07, 12:09:37

### Schedule:

Make 2 stops from 100 kph  
 Pedal Force: 1st stop is done with an average force less than the average recorded in the shortest GVWR Cold Effectiveness stop.  
 2nd stop is done with a force less than 500 N.  
 No Lock-Up allowed longer than 0.1 sec above 15 km/h.

### Distance Requirements are based on the following:

shortest stop in Data Sheet 11 is: 2  
 Initial speed of stop: 99.81 (kph)  
 Actual distance of stop: 50.0 (meter)  
 Average pedal force: 358.5 (N)

### Performance Requirements:

Stop Number 1 must be less than: 76.7 (meter)  
 In addition the stopping distance for at least one of the of the two hot stops must be less than: 89 (meter)

STOP #	INIT SPD	LEFT FRONT	RIGHT FRONT	LEFT REAR	RIGHT REAR	ACTUAL DISTANCE	CORRECTED DISTANCE	MAX. PEDAL FORCE	AVG. PEDAL FORCE	MAX. DECEL	AVG. DECEL
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(SAE 299) (meter)	(N)	(N)	(m/sec <sup>2</sup> )	(m/sec <sup>2</sup> )
1	98.73	282	313	216	211	45.4	46.5	410.74	316.21	13.23	7.98
2	98.76	291	329	216	212	43.5	44.6	433.74	304.75	12.99	7.93

STOP #	DRIVER VEHICLE STOP COMMENTS			
	(Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	WEST	YES
2	-	NOX	WEST	YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDES Date: 12/31/07

Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400

Make: MAZDA

Model: CX-7 SPORT FWD

Body Style: 4DR HATCHBK MPV

Front Cold Tire Pressure: 221 (Kpa)

Rear Cold Tire Pressure: 221 (Kpa)

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Date Tested: 11/30/07

## DATA SHEET 28 - BRAKE COOLING STOPS AT GVWR

Testing Conditions: INV DATA, Section 0100, 11/30/07, 12:12:13

### Schedule:

Initial Brake Temperature:  
Achieved on completing Hot Performance  
Initial Speed 50 km/h to zero  
4 stops with transmission in gear

### Performance Requirements:

Constant Decel rate: 3.0 m/s/s  
Pedal force adjusted as necessary  
No Lock-Up allowed longer than 0.1 sec above 15 km/h  
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	AVG. DECEL (m/sec <sup>2</sup> )	AVG. PEDAL FORCE (N)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)
1	49.86	3.16	37.06	261	303	183	174
2	50.80	2.77	32.95	218	249	148	142
3	50.25	2.62	33.57	179	191	112	116
4	50.58	2.67	34.31	153	154	91	98

STOP #	DRIVER	VEHICLE	STOP COMMENTS
	(Wheel Lock up	-	Direction of Stop - Stay in Lane)
1	-	NOX	NORTH YES
2	-	NOX	NORTH YES
3	-	NOX	NORTH YES
4	-	NOX	EAST YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 12/15/07

Approving Laboratory Official: RANDY LANDES

Date: 12/31/07



Vehicle: 2008 MAZDA MOTOR COR NHTSA NUMBER: C85400  
 Make: MAZDA  
 Model: CX-7 SPORT FWD  
 Body Style: 4DR HATCHBK MPV  
 Front Cold Tire Pressure: 221 (Kpa)  
 Rear Cold Tire Pressure: 221 (Kpa)

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Date Tested: 11/30/07

## DATA SHEET 29 - RECOVERY PERFORMANCE AT GVWR

Testing Conditions: INV DATA, Section 0105, 11/30/07, 12:19:28

Weather Conditions: 41°F Wind: 22 mph 257° Start Odo.: 511 End Odo.: 529

### Schedule:

Make 2 stops from 100 kph

Pedal Force: Both stops are performed with an average force less than the average recorded in the shortest GVWR Cold Effectiveness stop.

### Performance Requirements:

One of the two stops must be within the following limits:

Upper limit of corrected stopping distance: 67.2 (meter)

Lower limit of corrected stopping distance: 36.7 (meter)

No Lock-Up allowed longer than 0.1 sec above 15 km/h.

### Distance Requirements are based on the following:

shortest stop in Data Sheet 11 is: Stop2

Initial speed of stop: 99.81 (kph)

Actual distance of stop: 50.0 (meter)

Average pedal force: 358.5 (N)

STOP #	INIT SPD (kph)	LEFT FRONT	RIGHT FRONT	LEFT REAR	RIGHT REAR	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec <sup>2</sup> )	AVG. DECEL (m/sec <sup>2</sup> )
		IBT (°C)	IBT (°C)	IBT (°C)	IBT (°C)						
1	99.51	142	141	83	90	45.0	45.4	338.32	257.21	12.16	7.69
2	99.60	160	172	93	99	43.5	43.9	495.06	301.08	16.57	8.03

STOP #	DRIVER VEHICLE STOP COMMENTS			
	(Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ( )

Driver: KAREN EASTERDAY Observer: NONE  
 Recorded Data Processed by: CHUCK JENKINS Date: 12/15/07  
 Approving Laboratory Official: RANDY LANDES Date: 12/31/07

**DATA SHEET 30 (Part 1 of 5)**  
**6.0 Test Completion Inspection (7.17)**

VEHICLE: 2008 Mazda CX-7 Sport FWD    NHTSA NO.: C85400

DATE: 12/10/07

System Integrity (S5.6)

Each vehicle shall meet the complete performance requirements of this standard without:

(a) Detachment or fracture of any component of the braking system such as brake springs and brake shoes or disc pad facings, other than minor cracks, that do not impair attachment of the friction facings. All mechanical components of the braking system shall be intact and functional. Friction facing tearout (complete detachment of lining) shall not exceed 10 percent of the lining on any single frictional element.

(b) Any visible brake fluid or lubricant on the friction surface of the brake or leakage at the master cylinder or brake power unit reservoir cover, seal, and filler openings.

Friction Material Condition: Primary/Inner		Friction Material Condition: Secondary/Outer	
LF	Normal Appearance & Color	LF	Normal Appearance & Color
RF	Normal Appearance & Color	RF	Normal Appearance & Color
LR	Normal Appearance & Color	LF	Normal Appearance & Color
RR	Normal Appearance & Color	RR	Normal Appearance & Color
Drum (or Rotor) Condition:		Brake Fluid/Lubricant Inside Brakes:	
LF	Normal Appearance & Color	LF	None
RF	Normal Appearance & Color	RF	None
LR	Normal Appearance & Color	LR	None
RR	Normal Appearance & Color	RR	None
Hydraulic Component Condition:		Mechanical Component Condition:	
LF	Good	Brk/Pedal	Good
RF	Good	Power Brk	Good
LR	Good	Stop/Lamp	Good
RR	Good	Linkage	Good
M/Cyl	Good	Other	NA

COMPLIANCE:    Yes X            No     

Comments: None.

Technician: K. Easterday

**DATA SHEET 30 (Part 2 of 5)**  
**TEST COMPLETION INSPECTION (S7.17)**

VEHICLE: 2008 Mazda CX-7 Sport FWD; NHTSA NO.: C85400; GVWR: 2168 kg  
MASTER CYLINDER RESERVOIR:

DATE	12/06/07	Requirements	Pass	Fail
<b>Reservoir Compartments (S5.4.1)</b>				
(1) Does master cylinder have a reservoir compartment for each brake subsystem?	<u>Yes</u>	Master cylinder shall have a reservoir compartment for each subsystem.	X	
	No			
(2) Does loss of fluid in one compartment result in complete loss from another compartment?	Yes	Loss of fluid from one compartment shall not cause complete loss from another compartment.	X	
	<u>No</u>			
<b>Reservoir Capacity (S5.4.2)</b>				
Shall conform to requirements (1) or (2), state units:				
(1) For reservoirs having completely separate compartments for each subsystem (two separate, independent reservoirs):				
Subsystem 1 Subsystem reservoir capacity		Each compartment (reservoir) shall have a minimum capacity equivalent to the fluid displacement resulting when all wheel cylinders or caliper pistons serviced by that independent compartment/reservoir moves from a new lining, fully retracted position to a fully worn, properly adjusted, fully applied position.  <b>(Use Data Sheet 31 and Appendix 1A)</b>	NA	NA
Subsystem 1 Fluid displaced from new to worn lining				
Subsystem 2 Subsystem reservoir capacity			NA	NA
Subsystem 2 Fluid displaced from new to worn lining				
2) For reservoirs utilizing a portion of the reservoir for a common supply to two or more subsystems:				
<b>Total</b> minimum capacity for the entire master cylinder reservoir (includes individual compartment reservoirs)	248 ml	Shall have total minimum capacity for entire reservoir for displacement resulting from all subsystem wheel cylinders or caliper positions moving from new lining to full worn condition as above.	X	
Fluid displaced from new to worn linings (ALL linings)	212.1 ml*			
*Value calculated from Data Sheet 31				

Comments: None.

**DATA SHEET 30 (Part 3 of 5)**  
**TEST COMPLETION INSPECTION (S7.18)**

VEHICLE: 2008 Mazda CX-7 Sport FWD; NHTSA NO.: C85400; GVWR: 2168 kg

**MASTER CYLINDER RESERVOIR:**

DATE	12/06/07		Requirements	Pass	Fail
Master Cylinder Piston Displacement(S5.4.2) [If Common Reservoir Supply - continued from previous page]					
Fluid displaced by three strokes of master cylinder piston for Subsystem No. 1.	24 ml	Individual partial compartments of reservoir shall <b>each</b> have a minimum of fluid equal to at least the volume displaced by the master cylinder piston servicing the subsystem during a <u>full stroke</u> of the piston.  <b>NOTE:</b> Procedure uses three strokes to ensure an accurate measurement.			
Fluid displaced by three strokes of master cylinder piston for Secondary (Subsystem No. 2)	24 ml				
Fluid displaced per stroke, Subsystem No. 1.	8 ml				
Fluid displaced per stroke, Subsystem No. 2.	8 ml				
Fluid available in partial compartment Subsystem No. 1	20 ml				
Fluid available in partial compartment Subsystem No. 2	38 ml				
<b>Brake Power Unit Reservoir (S5.4.2)</b>					
Volume displaced in charging system piston or accumulator to normal operating pressure plus wheel cylinder or caliper piston displacement.		Shall have a capacity at least equal to fluid displacement required to charge the system pistons on accumulators to normal operating pressure <u>plus</u> displacement when wheel cylinders or caliper pistons move from new lining to full worn condition as above.	NA		
<b>Reservoir Labeling (S5.4.3)</b>					
Exact copy of reservoir label: On master cylinder reservoir cap: <u>WARNING. CLEAN FILLER CAP BEFORE REMOVING. USE ONLY DOT 3 FLUID FROM A SEALED CONTAINER.</u>		Label shall read: "Warning, clean filler cap before removing; use only * fluid from a sealed container". * Fluid type specified in 49 CFR 571.116	X		
Measure letter height	3.2 mm	Letters shall be at least 3.2 mm/ 0.125" high	X		
Describe label attachment method and location. <u>Embossed on top of the filler cap of the master cylinder reservoir.</u>		Lettering shall be permanently affixed, engraved or embossed and located so as to be visible by direct view either on or within 100 mm/3.94 inches of the brake fluid reservoir filler plug or cap.	X		
Does the lettering contrast with the background?	<u>Yes</u>	If label is not engraved or embossed, letters shall be of a color that contrasts with the background	NA		
	No				

Comments: None.

Technician: K. Easterday

**DATA SHEET 30 (Part 4 of 5)**  
**TEST COMPLETION INSPECTION (S7.18)**

VEHICLE: 2008 Mazda CX-7 Sport FWD; NHTSA NO.: C85400; DATE: 12/11/07  
**BRAKE SYSTEM WARNING INDICATOR (S5.5)**

CONDITION	ANSWER	REQUIREMENTS	PASS	FAIL
<b>Brake Systems Indicator Lamp Function Check (S5.5.2) (Bulb and systems check)</b>				
Describe location of brake indicator lamp: <u>Lower left quadrant of the instrument cluster.</u>	NA	Shall be in front, and in clear view, of driver.	X	
Does lamp light with ignition (start) switch at ON/RUN?	Yes	Automatic activation when ignition switch is "on" when engine <b>not running</b> , or ignition between "on" and "start" if is manufacturer check position- OR -single manual action by driver	X	
Does lamp light with ignition between ON and Start?	Yes			
Brake check description in owner's manual?	Yes	Manufacturer shall explain the brake check function test procedure in the owner's manual.	X	
<b>Brake System Warning Indicator ACTIVATION (S5.5.1) DURATION (S5.5.3) FUNCTION (S5.5.4)</b>				
CONDITION	Light ON?	REQUIREMENT	PASS	FAIL
A. In event of hydraulic leak (1) On or before appearance of pressure differential of 218 psi (split system)	NA	When ignition (Start) switch is <b>ON</b> , lamp must light whenever (A), (B), (C), or (D) occurs. In addition, if service brake system is not a split system, audible warning must be activated when any condition in (A) exists. Visual warning indicator for non-split systems must be flashing.	X	
(2) If any reservoir falls below either "safe" level or 25% of capacity, whichever is greater.  Values: <b>134 ml</b> or cc.	Yes			
(3) On or before supply pressure to brake power unit falls to 50%	NA			
B. Electrical functional failure in an antilock or variable brake proportioning system.	Yes		X	
C. Application of the parking brake.	Yes			
D. Brake lining wear-out if optical warning.	NA			
E. For a vehicle with <u>electrically-actuated service brakes</u> , failure of the source of electric power to the brakes or diminution of state of charge of the batteries.	NA			
F. For a vehicle with <u>electric transmission of the service brake control signal</u> , failure to a brake control circuit.	NA			
G. For an EV with RBS that is part of the service brake system failure of RBS.	NA			
<b>Must have Audible alarm</b> if <u>not split system</u> and a condition in (a) above exists?	NA			
If condition (A) (2) above does not exist, then fluid reservoir must be <b>transparent</b> for fluid check without the need for reservoir to be opened? (S5.4.4)	NA			
Indicator lamps remain activated as long as condition exists - ignition "on", and engine on or off? _____ (S5.5.3 DURATION))	Yes			
Visual warning – continuous or flashing? Audible warning –continuous or flashing?	Yes-Cont. NA			

Comments: None.

Technician: K. Easterday

**DATA SHEET 30 (Part 5 of 5)**  
**TEST COMPLETION INSPECTION (S7.18)**

VEHICLE: 2008 Mazda CX-7 Sport FWD; NHTSA NO.: C85400; DATE: 12/11/07

**BRAKE SYSTEM WARNING INDICATOR LABELING (S5.5.5)**

CONDITION AND REQUIREMENT	ANSWER NOTE: Standard requires that the answer to questions be YES	PASS	FAIL
Are visual indicators legible to driver in daylight and nighttime conditions when activated?	Yes	X	
Are visual indicator words 3.2 mm (.125") high minimum? Record Height: "Brake" – <u>3.2 mm</u> ; "ABS" – <u>3.2 mm</u> .	Yes	X	
Visual indicator words and background contrasting colors, one of which is red. Record colors <u>Letters – Red, Lens – Black</u>	Yes	X	
If split system, is there one brake indicator? If yes, does it say the word "Brake"? (With one symbol above.)	Yes	X	
If not split system; is there a separate indicator for loss of fluid or fluid pressure? Does this indicator say "Stop-Brake Failure"? Are the letters block and not less than 6.4 mm (.25") in height? Record letter height _____	NA		
If separate indicator for: 1. Low brake fluid per S5.5.1(a)(1), does indicator say "Brake Fluid"? NOTE: not required for mineral oil system Record wording _____ 2. Gross pressure loss per S5.5.1(a)(2), does indicator say "Brake Pressure"? Record wording _____ 3. Electrical functional failure in antilock or variable proportioning system per S5.5.1(b), letters and background contrasting colors one of which is yellow? Record colors <u>Lens – Black, Letters – Yellow</u> . Does indicator say "Antilock" or "ABS" or "Brake Proportioning"? Record wording <u>"ABS" (within symbol)</u> . 4. Parking brake per S5.5.1(c), does indicator say "Park" or "Parking Brake"? Record wording _____ 5. Brake lining wear-out per S5.5.1(d), does indicator say "Brake Wear"? Record wording _____ 6. If separate indicator for RBS, the letters and background shall be of contrasting colors, one of which is yellow. The indicator shall be labeled "RBS". RBS failure in a system which is part of the service brake system may also be indicated by a yellow lamp that also indicates "ABS" failure and displays the symbol "ABS/RBS." Record wording: _____ 7. For any other function? If yes, Record <u>NA</u>	NA  NA  Yes  Yes  NA  NA  NA		

DATA INDICATES COMPLIANCE: YES X NO \_\_\_\_\_

Comments: None.

Technician: K. Easterday

### DATA SHEET 31 (Part 1 of 2)

#### CALCULATION OF MINIMUM RESERVOIR VOLUME REQUIREMENTS

VEHICLE: 2008 Mazda CX-7 Sport FWD; NHTSA NO.: C85400; DATE: 12/11/07

BRAKE		LINING		
LOCATION	TYPE	DESCRIPTION	MINIMUM THICKNESS	THICKNESS TO FULLY WORN (1) mm*
Left Front	Drum	Leading	Pre-test 11.61 mm	0
		Primary	Post Test 11.28 mm	
		Inboard X	Δ 0.33 mm	
	Disc X	Trailing	Pre-test 11.58 mm	0
		Secondary	Post Test 11.33 mm	
		Outboard X	Δ 0.25 mm	
LINING CLEARANCE:	Diametrical (2): N/A	Inboard – Approx 0 mm.	Outboard – Approx 0 mm.	
WHEEL CYLINDER DIAMETER (3): N/A		CALIPER PISTON DIAMETER (3): 45.34 mm (x2 pistons).		
SHOE CAGE DIAMETER (4) <u>N/A</u> ; CENTER POINT OF BRAKE ASSY TO CENTER POINT OF W.C. <u>N/A</u>				
Right Rear	Drum	Leading	Pre-test 10.85 mm	0
		Primary	Post Test 10.74 mm	
		Inboard X	Δ 0.11 mm	
	Disc X	Trailing	Pre-test 10.85 mm	0
		Secondary	Post Test 10.74 mm	
		Outboard X	Δ 0.11 mm	
LINING CLEARANCE:	Diametrical (2) N/A	Inboard – Approx 0 mm.	Outboard – Approx 0 mm.	
WHEEL CYLINDER DIAMETER (3): NA mm		CALIPER PISTON DIAMETER (3): 42.88 mm (x1 piston).		
SHOE CAGE DIAMETER (4): NA mm		CENTER POINT OF BRAKE ASSY TO CENTER PT. OF W.C.: NA mm		
CIRCUIT #1 CONSISTS OF:	LF – X	LR	RF	RR – X
CIRCUIT #2 CONSISTS OF:	LF	LR – X	RF – X	RR
(1) MFRS. RECOMMENDATIONS – FRONT and REAR: NA mm.				
(2) REAR -NA mm FRONT – NA mm				
(2) DRUM BRAKES, MEASURED AT HORIZONTAL CENTERLINE: RR drum ID: NA mm.				
(3) MFRS. DATA: FRONT – NA mm, REAR – NA mm.				
(4) RESET POSITION: NA mm.				

Comments: No manufacturer's data provided. Zero mm "fully worn thickness" utilized as a default.

Technician: K. Easterday

**DATA SHEET 31 – SECTION CONTINUED (Part 2 of 2)**Vehicle: 2008 Mazda CX-7 Sport FWD;NHTSA No.: C85400;Date: 01/16/08**Procedure and Example for Determining Master Cylinder Volume Requirement**

The procedure followed for determining the minimum volume requirements is outlined in the example shown below. The required data is taken from the previous page.

**DISC BRAKES**

Volume Required,  $V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times [\pi (D^2)]/4$ , where –

$V_r$  = Volume required per wheel  
 $\Delta t$  = Change in thickness (average)  
*i* = Inboard  
*o* = Outboard  
*D* = Caliper cylinder diameter  
*c* = Average clearance

Using the above equations, the volume requirements for Subsystem No. 1 (LR, RR) and Subsystem No. 2 (RF, LR) were calculated utilizing measured and manufacturer's provided data to create the greatest displacement, as shown below:

Disc Brake:  
 (Front)

$$V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times \frac{\pi D^2}{4}$$

$$\Delta t_i = 11.61 \text{ mm}$$

$$\Delta t_o = 11.58 \text{ mm}$$

$$t_{ic} + t_{oc} = 0 \text{ mm}$$

$$D = 45.34 \text{ mm}$$

$$V_r = (11.61 + 0 + 11.58 + 0) \frac{\pi (45.34)^2}{4}$$

$$= 23.19 (1614.6)$$

$$= 37441.5 \text{ mm}^3 = 37.4 \text{ ml (x2 pistons)} = 74.8 \text{ ml}$$

Disc Brake:  
 (Rear)

$$V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times \frac{\pi D^2}{4}$$

$$\Delta t_i = 10.85 \text{ mm}$$

$$\Delta t_o = 10.74 \text{ mm}$$

$$t_{ic} + t_{oc} = 0 \text{ mm}$$

$$D = 42.88 \text{ mm}$$

$$V_r = (10.85 + 0 + 10.74 + 0) \frac{\pi (42.88)^2}{4}$$

$$= 21.59 (1444.1)$$

$$= 31178.3 \text{ mm}^3 = 31.2 \text{ ml}$$

For System 1 (LF, RR)

$$V_{r1} = 74883 \text{ mm}^3 + 31178 \text{ mm}^3 = 106061 \text{ mm}^3$$

$$V_{r1} = 106061 \text{ mm}^3 = (106.1 \text{ ml})$$

For System 2 (RF, LR)

$$V_{r2} = V_{r1}$$

$$V_{r2} = 106061 \text{ mm}^3 = (106.1 \text{ ml})$$

$$\text{TOTAL VOLUME REQUIRED} = V_t = V_{r1} + V_{r2} = 212122 \text{ mm}^3 = 212.1 \text{ ml}^*$$



## Section 6.0

### Photographs

2008 Mazda CX-7 Sport FWD  
4-Dr. MPV  
NHTSA No. C85400  
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Left Front 3/4 View



2008 Mazda CX-7 Sport FWD  
4-Dr. MPV  
NHTSA No. C85400  
January 2008

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Right Rear 3/4 View



2008 Mazda CX-7 Sport FWD  
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January 2008

MFD. BY MAZDA MOTOR CORPORATION

DATE 06/07

GVWR/PNBU 4780 LB 2168 KG

FRONT GAWR/PNBE AU 2535 LB 1150 KG

REAR GAWR/PNBE AR 2253 LB 1022 KG

WITH/AVEC P235/60R18 102H TIRES/PNEUS WITH/AVEC P235/60R18 102H TIRES/PNEUS

18X7 1/2J

RIMS/JANTES

18X7 1/2J

RIMS/JANTES

220 KPA/32 PSI

COLD/A FROID

220 KPA/32 PSI

COLD/A FROID

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SATETY AND THEFT  
PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

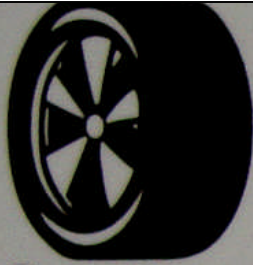
VIN: JM3ER293X80174861 TYPE:MPV

COLOR CODE:A3F MADE IN JAPAN



Vehicle Certification Placard

2008 Mazda CX-7 Sport FWD  
4-Dr. MPV  
NHTSA No. C85400  
January 2008



## TIRE AND LOADING INFORMATION

SEATING CAPACITY: TOTAL 5 | FRONT 2 | REAR 3

The combined weight of occupants and cargo should never exceed 385kg or 850lbs.

TIRE	SIZE	COLD TIRE PRESSURE
FRONT	P235/60R18	220KPA, 32PSI
REAR	P235/60R18	220KPA, 32PSI
SPARE	T155/90D18	420KPA, 60PSI

**SEE OWNER'S  
MANUAL FOR  
ADDITIONAL  
INFORMATION**

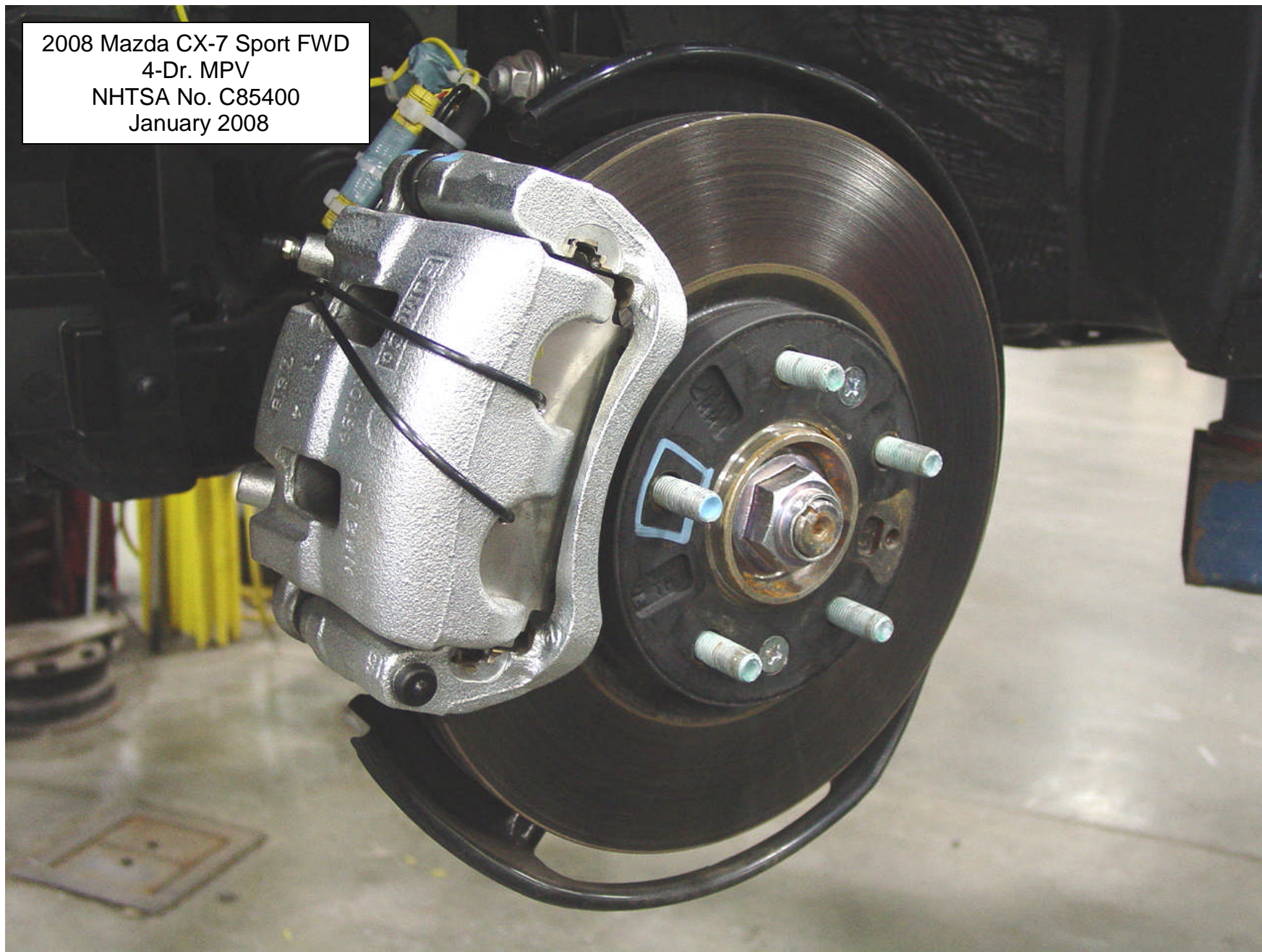
(EG21A)

Vehicle Tire Information Label



2008 Mazda CX-7 Sport FWD  
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Left Front Thermocouple Installation



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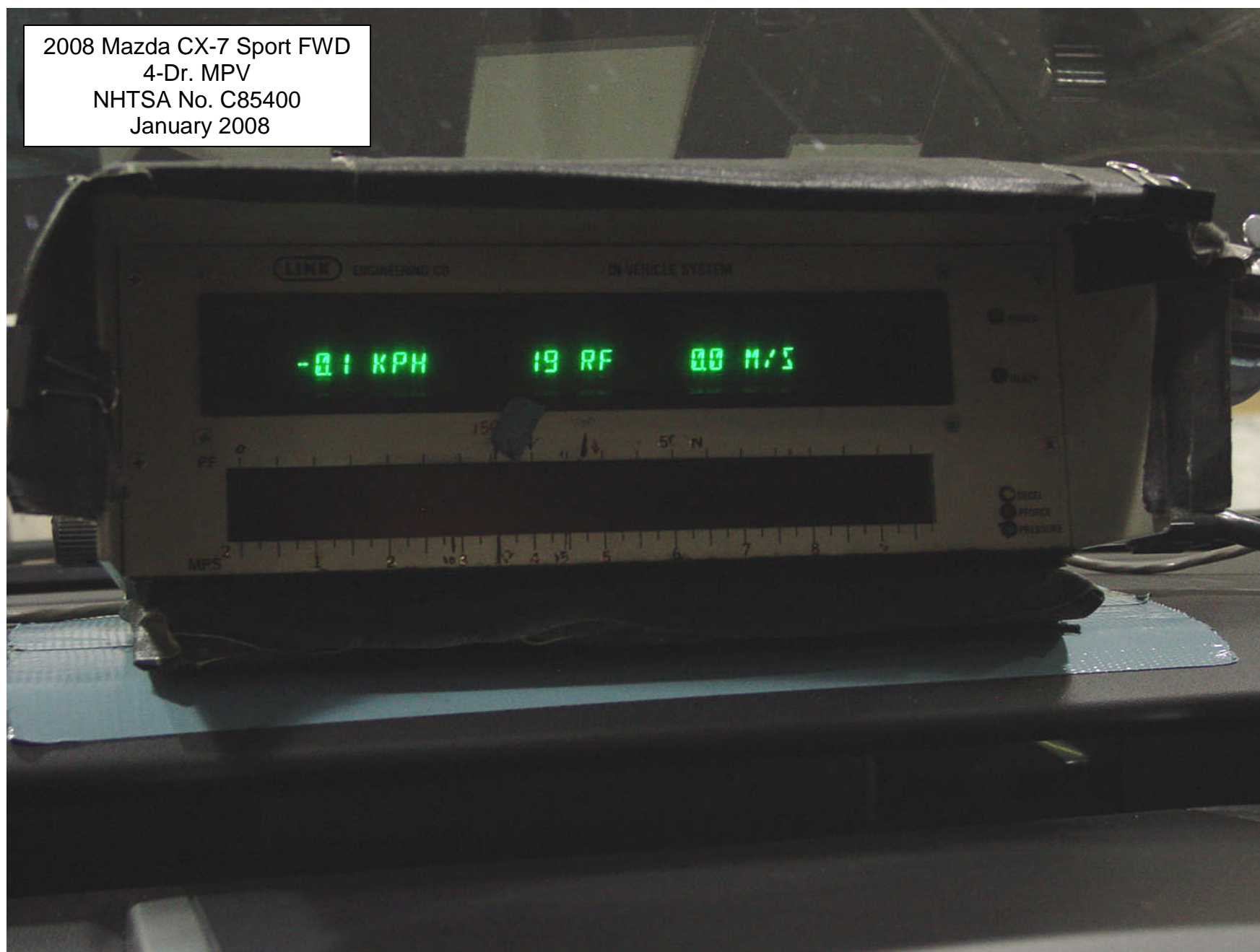
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Right Rear Thermocouple Installation

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Test Instrumentation in Vehicle



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Test Instrumentation in Vehicle



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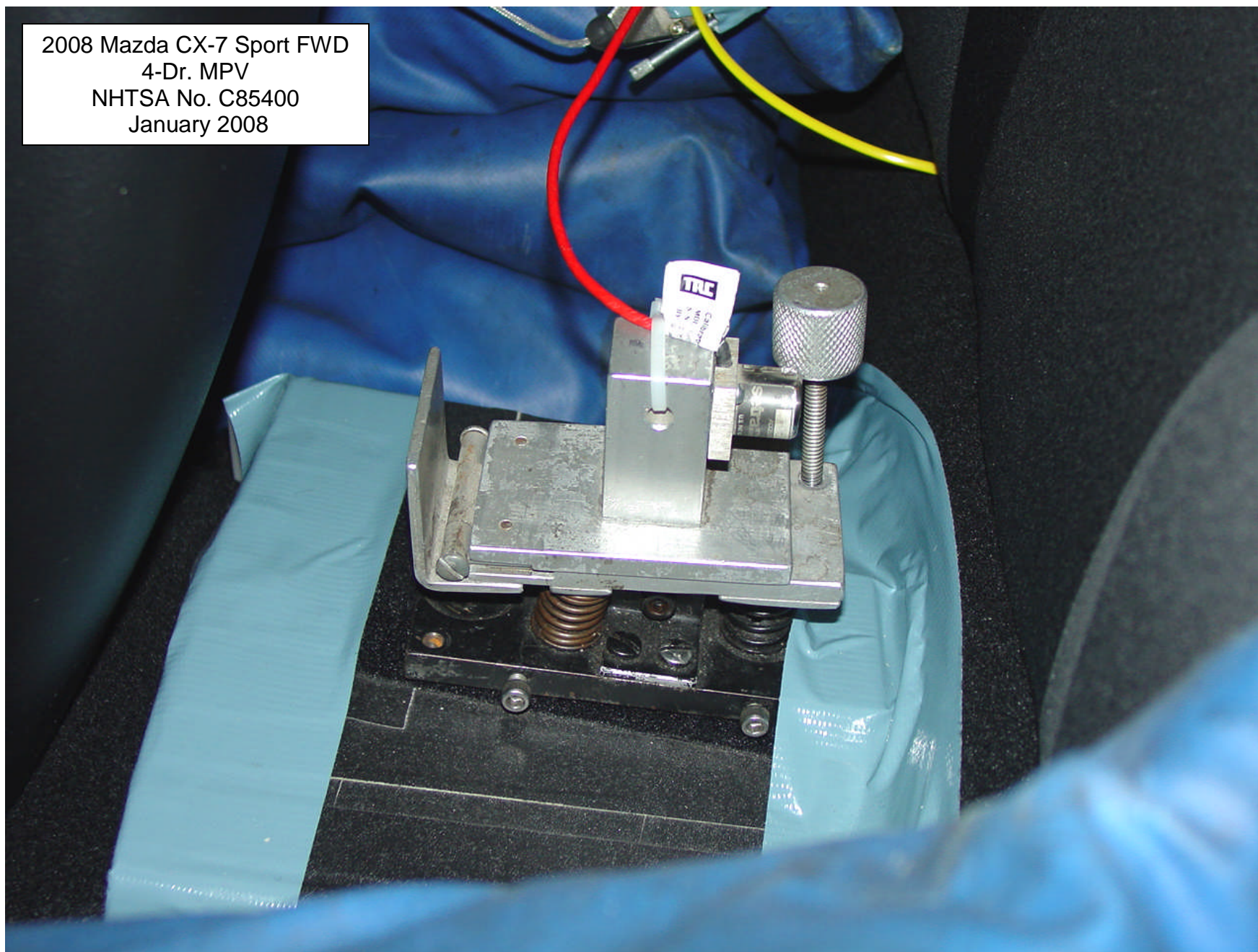


Test Instrumentation in Vehicle



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Test Instrumentation in Vehicle



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Test Instrumentation in Vehicle



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Vehicle Being Weighed



2008 Mazda CX-7 Sport FWD  
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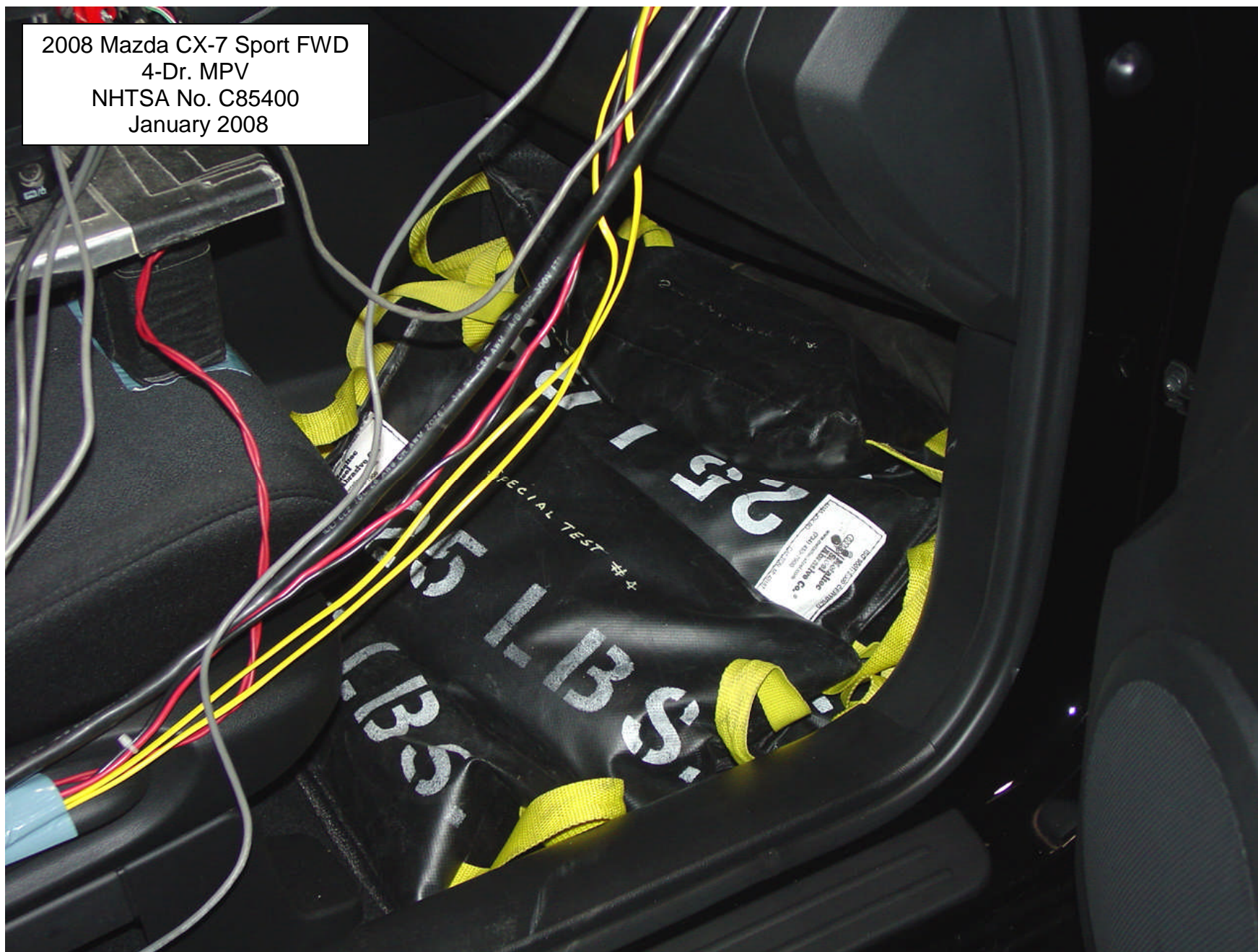


Ballast in Vehicle



2008 Mazda CX-7 Sport FWD  
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January 2008

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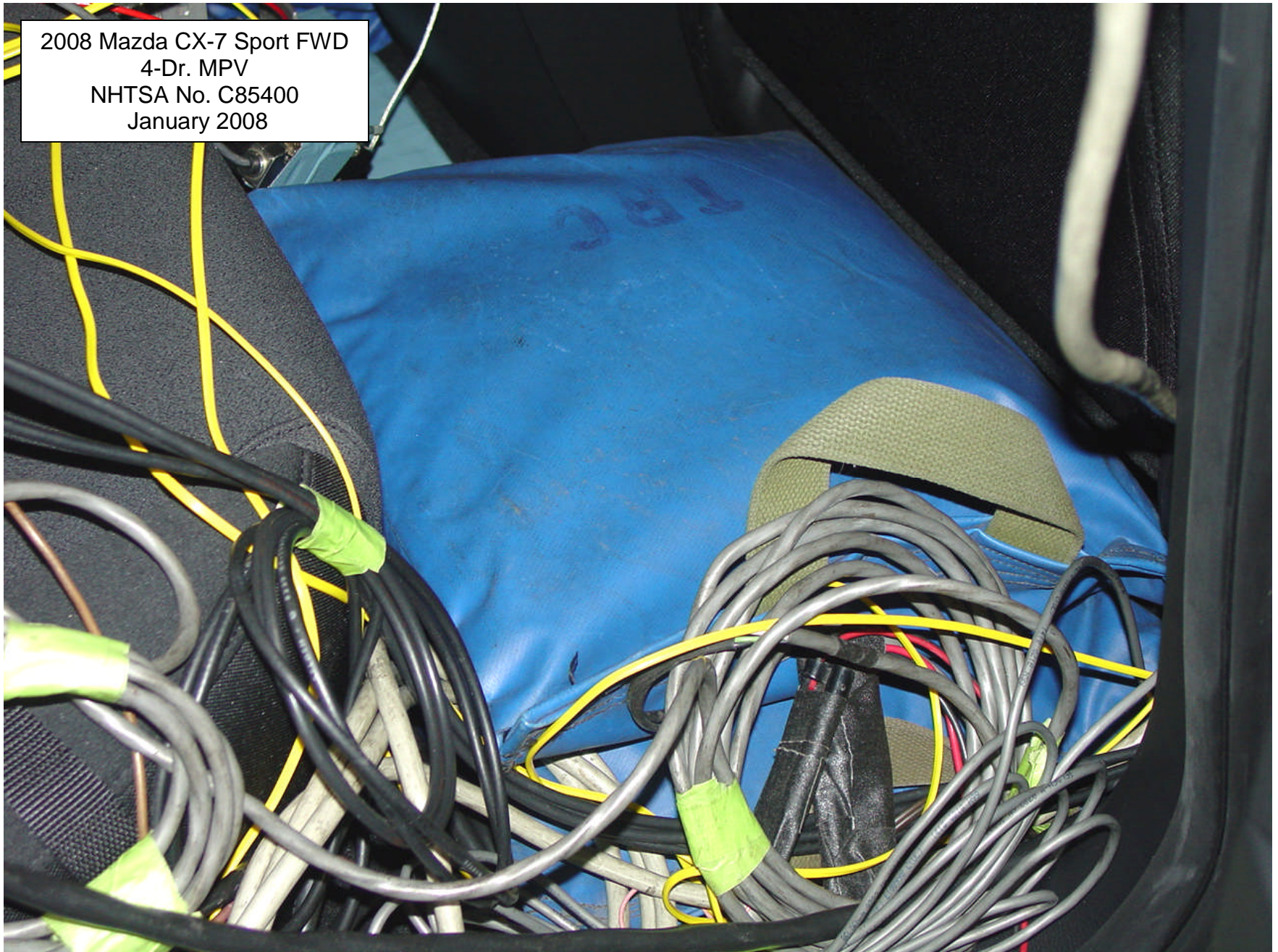


Ballast in Vehicle



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Ballast in Vehicle



2008 Mazda CX-7 Sport FWD  
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January 2008

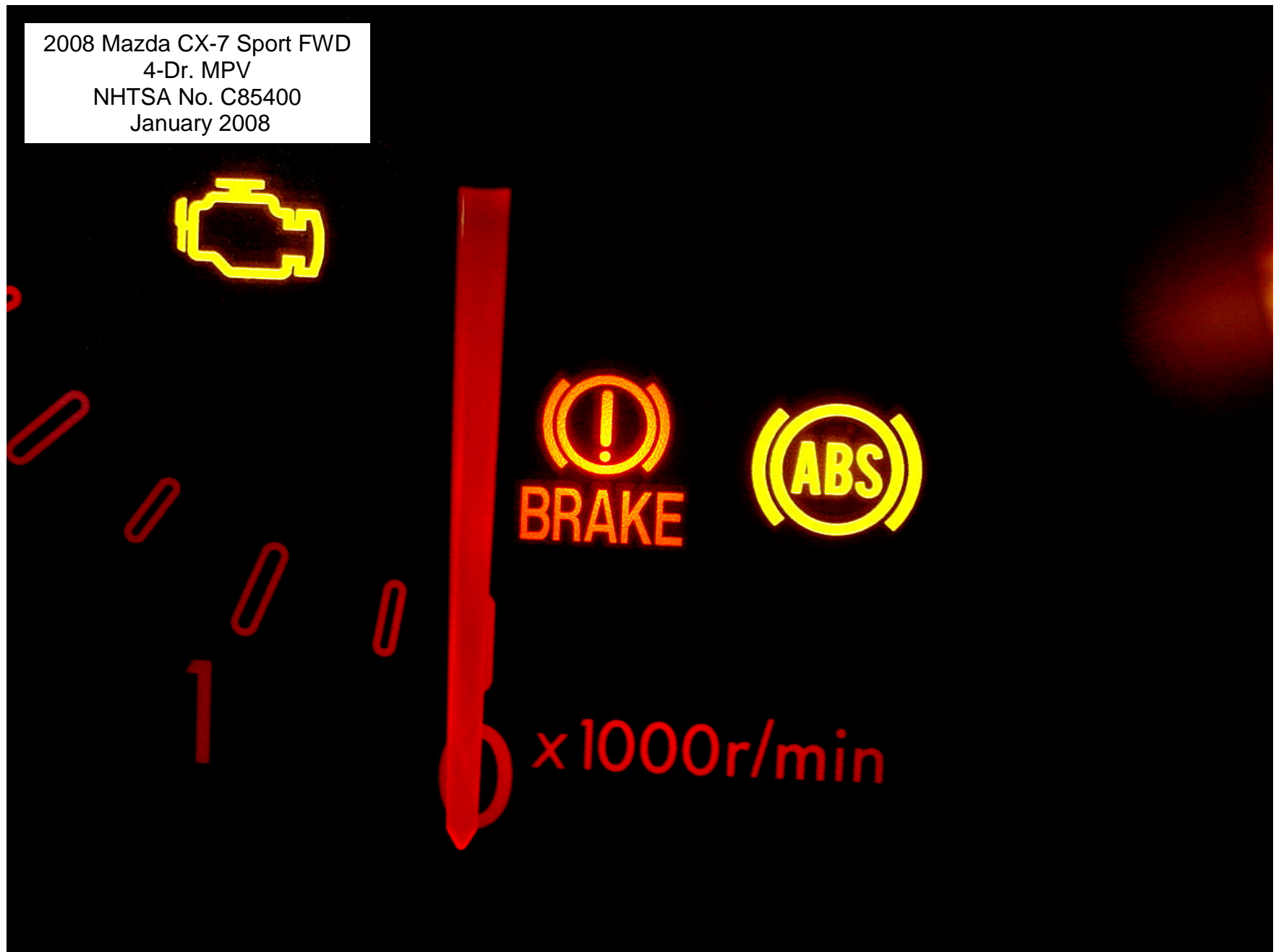
49



Ballast in Vehicle

2008 Mazda CX-7 Sport FWD  
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January 2008

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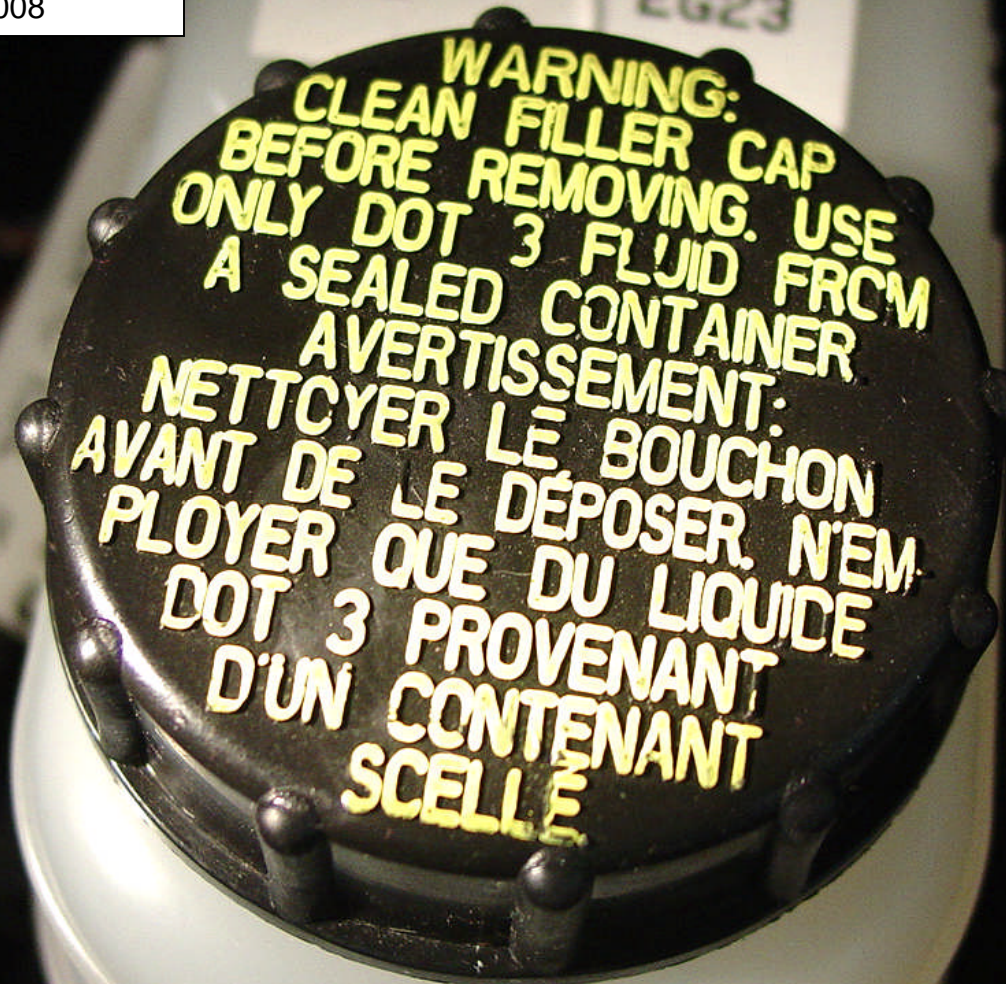


Brake System Indicators (Warning) and (ABS) Lamps



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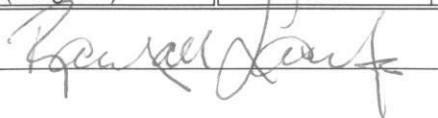
Brake Fluid (Master Cylinder) Reservoir Warning Label

## 7.0 INSTRUMENT CALIBRATION (12 MONTH MAXIMUM INTERVAL)

VEHICLE: 2008 Mazda CX-7 Sport FWD ; NHTSA NO.: C85400; DATE: 11/18/07

INSTRUMENT	SERIAL NUMBER	CALIBRATION DATE	NEXT CALIBRATION
Data Acquisition System - Link DAS 2082	975016	07/17/07	07/17/08
Computer – Dell/Link Engrg.	TRC-43207	Not Applicable	Not Applicable
Software - Link Engrg. Rev Data	TRC Propr.	NA	NA
LF Torque Wheel	Not Utilized		
RF Torque Wheel	Not Utilized		
LR Torque Wheel	Not Utilized		
RR Torque Wheel	Not Utilized		
Stopwatch – Fisher Scientific (Heating Snubs)	SN-97216633	08/21/07	08/21/08
Stopwatch – Accusplit (Daily Cals)	SW ST03	08/21/07	08/21/08
Tire Pressure Gauge – WIKA	AG-101	08/07/07	11/07/07
Pedal Force Transducer – Sensor Devel	169755	Each Test	Each Test
Asst. Pipe-Handle Steel Weights - Ohaus	LB-0001	05/05/07	05/05/08
Park Brake Force Transducer – Lebow	LC-42631	Each Test	Each Test
LF Hydraulic Pressure Transducer	Not Utilized		
RF Hydraulic Pressure Transducer	Not Utilized		
LR Hydraulic Pressure Transducer	Not Utilized		
RR Hydraulic Pressure Transducer	Not Utilized		
Accelerometer - Setra (+ or – 15 g) 141A	A-1055763	Each Test	Each Test
Fifth Wheel – ADAT DSR-06 Radar	140.0229	Each Test	Each Test
Wind Velocity/Direct. – Davis Model 6410	070321N03	03/21/07	03/21/08
Ambient Temp. Gage–Davis Mod. 6150C	070321N01	03/21/07	03/21/08
LF Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
RF Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
LR Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
RR Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
Lock-up Detection System	TRC Propr.	Each Test	Each Test
Vehicle Weight – Toledo/Mettler Scales JAGXTREME 3000000, (Bldg. 70)	SN 5225831-5JC	11/09/07	02/09/08

QUALITY ASSURANCE



# DAILY CALIBRATIONS (1 of 3)

Vehicle: 2008 Mazda CX-7 Sport FWD

NHTSA No.: C85400

Deceleration Calibration Data for Unit 8353

Desired full scale value is: 9.81 m/s/s

Allowed deviation is: + or - 0.15 m/s/s

"Date"	"Time"	Zero	Cal	
"stp"	"stp"	"Decel"	"Decel"	
11/16/2007	9:04:39	-0.01	9.73	PRE-TEST CAL.
11/20/2007	13:12:04	0.00	9.84	
11/20/2007	15:12:11	-0.06	9.80	
11/21/2007	13:12:28	-0.03	9.78	
11/21/2007	15:23:07	0.02	9.83	
11/23/2007	12:58:30	0.01	9.79	
11/23/2007	15:51:09	0.04	9.76	
11/27/2007	8:33:02	-0.01	9.76	
11/27/2007	15:52:58	0.04	9.80	
11/28/2007	10:18:17	0.02	9.75	
11/30/2007	9:22:41	0.02	9.74	POST-TEST CAL.
11/30/2007	13:38:37	0.00	9.73	
11/30/2007	13:50:59	-0.01	9.77	

Accelerometer Level to zero, then tilt to full scale

Pre-Test Linearity Check 11/16/2007

Actual (m/s/s)	Rec. (m/s/s)
0.0	0.0
3.0	3.0
6.1	6.1
9.8	9.8

Post-Test Linearity Check 11/30/2007

Actual (m/s/s)	Rec. (m/s/s)
0.0	0.0
3.0	3.0
6.1	6.1
9.8	9.8

Distance Calibration Data for Unit 8353

Desired full scale value is: 1000 m

Allowed deviation is: 3 m

"Date"	"Time"	Distance for	
"stp"	"stp"	1000 meters	
11/19/2007	14:32:37	999.8	PRE-TEST CAL.
11/20/2007	13:16:47	1000.1	
11/20/2007	15:17:27	998.6	
11/21/2007	13:21:36	999.7	
11/21/2007	15:28:07	999.7	
11/23/2007	13:06:43	999.6	
11/23/2007	15:55:32	999.9	
11/27/2007	8:39:23	999.5	
11/27/2007	15:57:17	999.6	
11/28/2007	10:22:21	999.4	
11/30/2007	10:29:09	999.6	POST-TEST CAL.
11/30/2007	13:42:10	999.6	

Light beam Drive from 0 to 100 to 0 km/h distance sensor on a measured kilometer

# **DAILY CALIBRATIONS CONTINUED (2 of 3)**

Vehicle: 2008 Mazda CX-7 Sport FWD

NHTSA No.: C85400

Wheel Tachometer Calibrations for Unit 8353

Wheel tachometer calibrations: all wheel speeds should be 15 km/h

		"Date"	"Time"	Zero	@ 15km/h	Zero	@ 15km/h	Zero	@ 15km/h	Zero	@ 15km/h	
		stp	stp	LF	LF	RF	RF	LR	LR	RR	RR	
Wheel lock detector	While at a standstill,	11/20/2007	13:15:39	0.0	15.8	0.0	16.2	0.0	15.8	0.0	16.4	PRE-TEST CAL.
	check zeros	11/20/2007	15:13:49	0.0	17.4	0.0	15.8	0.0	16.7	0.0	16.0	
	Drive vehicle at approx.	11/21/2007	13:16:51	0.0	15.9	0.0	15.7	0.0	17.0	0.0	15.9	
	15 km/h and engage zero speed switch	11/21/2007	15:25:05	0.0	16.5	0.0	16.2	0.0	16.2	0.0	16.5	
	for each wheel	11/23/2007	12:56:16	0.0	16.8	0.0	16.9	0.0	16.5	0.0	17.0	
		11/23/2007	15:52:38	0.0	15.8	0.0	15.8	0.0	15.5	0.0	16.1	
		11/27/2007	8:33:58	0.0	16.3	0.0	16.3	0.0	16.1	0.0	16.4	
		11/27/2007	15:54:03	0.0	15.9	0.0	16.2	0.0	16.0	0.0	16.5	
		11/28/2007	10:21:30	0.0	16.0	0.0	16.0	0.0	15.8	0.0	16.3	
		11/30/2007	10:24:28	0.0	15.8	0.0	15.8	0.0	15.7	0.0	16.1	
		11/30/2007	13:44:03	0.0	15.9	0.0	15.9	0.0	15.8	0.0	16.2	POST-TEST CAL.

When driven over 15 km/hr and the wheel tack generators are shunted to zero volts, does the graphical screen indicate wheel lock sl position?:  X  Yes,   No.

\*Note: RF wheel speed is recorded in the performance stop data. DAS problem did not allow display in calibration mode.

Pedal Force Meter Calibration for Unit 8353

Target shunt calibration is 389 N

Desired recorded value is: 389 N

Desired recorded actual force calibration check value is: 500 N

Allowed deviation is: 6.5 N

		"Date"	"Time"	Zero	Cal Val	
		stp	stp	Force	Force lb	
Service brk pedal effort engages a fixed shunt cal switch.	Driver	11/16/2007	9:09:18	-0.9	498.9	PRE-TEST CAL.
		11/20/2007	13:11:26	-0.1	389.4	
		11/20/2007	15:12:37	-0.4	389.2	
		11/21/2007	13:11:48	-5.8	389.5	
		11/21/2007	15:23:30	-5.8	389.4	
		11/23/2007	12:54:53	-0.1	389.6	
		11/23/2007	15:50:45	-0.4	389.5	
		11/27/2007	8:31:55	-0.3	389.1	
		11/27/2007	15:52:18	-0.4	389.3	
		11/28/2007	10:17:34	-0.2	389.1	
		11/30/2007	9:21:59	-0.4	389.5	
		11/30/2007	13:38:11	-0.1	389.5	
		11/30/2007	14:08:58	-0.7	497.2	
						POST-TEST CAL.

Pre-Test Linearity Check - 11/16/07

Actual	Recorded
Force (N)	Force (N)
0	0
222	222
445	445
498	498

Post-Test Linearity Check - 11/30/07

Actual	Recrdd
Force (N)	Frc(N)
0	0
222	221
445	444
498	497

### DAILY CALIBRATIONS CONTINUED (3 of 3)

Vehicle: 2008 Mazda CX-7 Sport FWD

NHTSA No.: C85400

Dynamic Speed Calibration for Unit 8353

Desired speed value is: 100 km/h

Allowed deviation is: 1.6 km/h

Desired time value is: 36 seconds

Allowed deviation is: + or - 0.6 seconds

		"Date"	"Time"	"Speed"	Time"	
		stp	stp	km/h	sec	
Light beam speed sensor	Drive vehicle at a steady 100 km/h through a kilometer.	11/19/2007	14:35:36	100.3	36.09	PRE-TEST CAL.
		11/20/2007	13:14:25	99.6	36.31	
		11/20/2007	15:15:28	100.2	36.21	
		11/21/2007	13:19:42	100.4	36.59	
		11/21/2007	15:26:49	100.3	36.31	
		11/23/2007	13:04:41	100.2	36.28	
		11/23/2007	15:54:07	100.1	36.31	
		11/27/2007	8:41:27	100.7	36.21	
		11/27/2007	15:55:12	100.1	36.28	
		11/28/2007	10:19:48	100.5	36.15	
		11/30/2007	10:26:56	100.1	36.12	POST-TEST CAL.
		11/30/2007	13:40:19	100.9	36.09	

## APPENDIX A

### Copy of Manufacturer's Sticker



**Model:** 2008 CX-7 SPORT FRONT WHEEL DRIVE  
**Exterior Color:** BRILLIANT BLACK CLEARCOAT  
**Interior Color:** BLACK

**SOLD TO:** 61454

RICART MAZDA  
 4255 S. HAMILTON ROAD  
 GROVEPORT, OH 43125  
 20

**SHIP TO:** 61454

RICART MAZDA  
 4255 S. HAMILTON ROAD  
 GROVEPORT, OH 43125

CX7-SP-2A-EC69NAZ-WN-MTRN-20070717

JM3ER293X80174861



This label is affixed pursuant to the Federal Automobile Disclosure Act. Gasoline, License and Title fees, State and Local taxes, and Dealer installed options are not included.

**PARTS CONTENT INFORMATION:**

FOR VEHICLES IN THIS CARLINE:  
 U.S./CANADIAN PARTS CONTENT: 0%  
 MAJOR SOURCES OF FOREIGN PARTS CONTENT:  
 JAPAN: 95%

FOR THIS VEHICLE:  
 FINAL ASSEMBLY POINT: HIROSHIMA, JAPAN  
 COUNTRY OF ORIGIN:  
 ENGINE PARTS: JAPAN  
 TRANSMISSION PARTS: JAPAN

NOTE: \*PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION, OR OTHER NON-PARTS COSTS.\*

Compare this vehicle to others in the FREE FUEL ECONOMY GUIDE available at the dealer.

These estimates reflect new EPA methods beginning with 2008 models.

CITY MPG

17

HIGHWAY MPG

22



**Actual Mileage** will vary with options, driving conditions, driving habits and vehicle's condition. Results reported to EPA indicate that the majority of vehicles with these estimates will achieve between 14 and 20 mpg in the city, 14 and 20 mpg in the highway.

**2008 CX7**

4-CYLINDER, 138 CUBIC INCH DISPLACEMENT, ELECTRONIC GASOLINE INJECTION, 8-SPEED AUTOMATIC OD TRANSMISSION CATALYST EQUIPPED.

**Estimated Annual Fuel Cost:**  
 \$2,210

For Comparison Shopping, all vehicles classified as **SPECIAL PURPOSE** have been issued mileage ratings ranging from 8 to 31 mpg city and 12 to 25 mpg highway.

**2008 Mazda CX-7**  
*The SUV you never saw coming. (TM)*

**STANDARD EQUIPMENT**

- ENGINE/MECHANICAL FEATURES**
  - 2.3L I4 16-VALVE 4 CYL TURBO-CHARGED & INTERCOOLED DISI (DIRECT INJECTION SPARK IGNITION) ALL ALUMINUM ENGINE
  - 244 HP, 258 LB FT TORQUE
  - 6-SPEED SPORT AT W/SPORT SHIFT FRONT-WHEEL DRIVE
- EXTERIOR FEATURES**
  - 18-INCH ALUMINUM ALLOY WHEELS
  - P235/60R18 ALL SEASON TIRES
  - HALOGEN HEADLIGHTS
  - POWER MIRRORS
  - STAINLESS STEEL EXHAUST OUTLET
- INTERIOR FEATURES**
  - 5-PASSENGER SEATING
  - CLOTH TRIMMED SEATS
  - CARPETED FLOOR MATS
  - 80/40 SPLIT FOLD DOWN REAR SEATS
  - 6-WAY MANUAL ADJ DRIVER SEAT
  - AUTO UP/DOWN FRONT WINDOW WITH ANTI-PINCH AND REMOTE OPEN
  - 9-SPOKE TILT STEERING WHEEL WITH AUDIO AND CRUISE CONTROLS
- SAFETY AND SECURITY FEATURES**
  - 36 MONTH / 36,000 MILE "BUMPER-TO-BUMPER" WARRANTY
  - 60 MONTH / 60,000 MILE POWERTRAIN WARRANTY
  - ADVANCED DUAL FRONT AIR BAGS
  - FRONT SIDE-IMPACT AIR BAGS
  - 3-POINT FRONT SEATBELTS
  - LATCH REAR CHILD SAFETY SEAT

**MSRP\*** \$23,750

**OPTIONAL EQUIPMENT**

P81 8-WAY POWER DRIVER'S SEAT & LUMBAR ADJ.

Total Vehicle and Options Delivery, Processing and Handling Fee

**Total MSRP\*** \$24,695

**MAZDA MAKES ZOOM-ZOOM EASY TO EXPERIENCE**

Zoom-Zoom is the "emotion of motion." It's that exhilarating, connected-to-the-road feeling every driving enthusiast loves. Zoom-Zoom is an integral part of every Mazda we make. And, in this vehicle, it's enhanced by design features that include:

☒ **Responsive, Technologically-advanced Drivetrain**  
 CX-7's 244-hp direct-injected & turbo-charged engine delivers a remarkable 258 lb-ft of torque at just 2600 rpm for effortless acceleration, 8-speed Sport AT transmission with manual shift mode for outstanding power management.

☒ **Sports car-Inspired Handling and Braking**  
 The CX-7 utilizes a sophisticated 4-wheel independent suspension for sports-car inspired handling & sure-footed grip. 4-wheel ventilated disc brakes w/ABS, Electronic Brakeforce Dist. & Brake Assist promote linear, fade-resistant stops.

☒ **State Of The Art Control Systems**  
 Standard Dynamic Stability Control and Traction Control aids vehicle stability when accelerating, cornering, or during emergency avoidance maneuvers. Available cross-vehicle-controlled Active Torque-Split Control With One for maximum traction in all driving conditions.

☒ **Enhanced Driving Enjoyment**  
 Front side-impact air bags & front/rear side-impact air curtains help provide safety protection. Tire Pressure Monitoring System helps assure correct tire pressure.

☒ **Uncommon Extras**  
 Available Touch Screen DVD navigation system w/voice command for accurate guidance & ease of use, & rearview camera to provide a clear view of the area behind the vehicle when gear is in reverse.

To learn more go to:  
[www.mazdausa.com](http://www.mazdausa.com)



MSRP (Manufacturer's Suggested Retail Price)

*Always the Soul of a Sports Car®*

See [www.fueleconomy.gov](http://www.fueleconomy.gov)

## APPENDIX B

### Discussion on Data

## DISCUSSION ON DATA

### Symbols for Brake Components

4	-	4 Wheel	G	-	Groan	DL	-	Deceleration (State FPSPS)
X	-	Skid	SQ	-	Squeal	PF	-	Pedal on Floor
L	-	Left	SQK	-	Squeak	SCP	-	Shoe Scrape
R	-	Right	PO	-	Pinchout	RB	-	Rubber Banding
R	-	Rear	P	-	Pull	O	-	Odor
F	-	Front	R	-	Shudder	NOX	-	No Skid
B	-	Both	M	-	Momentary			

INT or INIT	-	Initial Part of Stop
MID	-	Middle of Stop
END	-	End of Stop

All stops were made manually.

## APPENDIX C

Contractor's Comments  
Procedure Modifications  
and  
Test Facility

Comments for vehicle C85400.

For all recorded decelerations:

The recorded *average* deceleration values for the tests are slightly lower than that which is required or targeted for certain test sections. However, in all cases and in reality, the driver maintained the correct required/target deceleration values for the majority of time for each of those stops. The recorded deceleration is acquired from the moment the service brake pedal is moved until the vehicle reaches zero speed. Therefore, the time needed to achieve the target deceleration (rise time) and the time the vehicle goes from the target deceleration to zero (fall time) is included in the average deceleration calculation. The rise and fall times were added to the entire length of the stops. Hence, the recorded average deceleration values were generally and slightly less than the required/target deceleration values.

The manufacture of the master cylinder did not allow a safe disassembly and reassembly. Additionally, manufacturer's data was unavailable. Therefore, the laboratory was unable to acquire the master cylinder piston diameter measurement.

### 7.5-MILE TEST TRACK

The 7.5-mile test track encloses a 1,600-acre area, one mile wide and 3.5 miles long.

The track has a downward grade, north to south, of 0.228 percent and a cross slope in the straightaways of 3/16 inch per foot. The 1.88 mile long straightaways flow into transition areas 2,300 feet in length and then into 5,275-foot long curves with a constant radius of 2,400 feet. The 36-foot wide straightaways and the 42-foot wide curves provide three test lanes. Paved berms, 12 feet in width, border the straightaways and the inside of the curves.

As a vehicle moves toward the outside of the track in the curves, it encounters a progressively steeper bank. The inside lane (or "slow" lane) has a bank of 10 degrees allowing a neutral speed of 80 mph with no side forces. In the center lane, the slope increases to 19 degrees resulting in a neutral speed of 110 mph. The outside lane's 28-degree bank allows a 140 mph neutral speed. Rimming the outer lane is a seven-foot safety lane culminating in a 36-degree slope at the guardrail.

The facility is paved with Portland cement concrete. It carries a maximum single axle load of 36,000 pounds and a maximum tandem axle load weight of 48,000 pounds. Special provisions can be made for heavier weight loads.

With 22.5 lane miles, our track will accommodate many vehicles simultaneously. Research which utilizes the track includes component performance and durability studies, brake tests, aerodynamic studies, fuel economy studies, drive line efficiency tests, and the determination of vehicular acceleration and cruise characteristics. In addition, it supports maximum speed determination, road load power, noise and emission measurements and tire durability test programs.

The 7.5-mile test track can be used in conjunction with other facilities at TRC. It provides an excellent area for pre-test conditioning of equipment such as brake burnishing, tire break-in, and vehicle warm-up.

### TRC SKID PAD

The Skid Pad is a test facility which is utilized primarily for the evaluation of tire and brake systems.

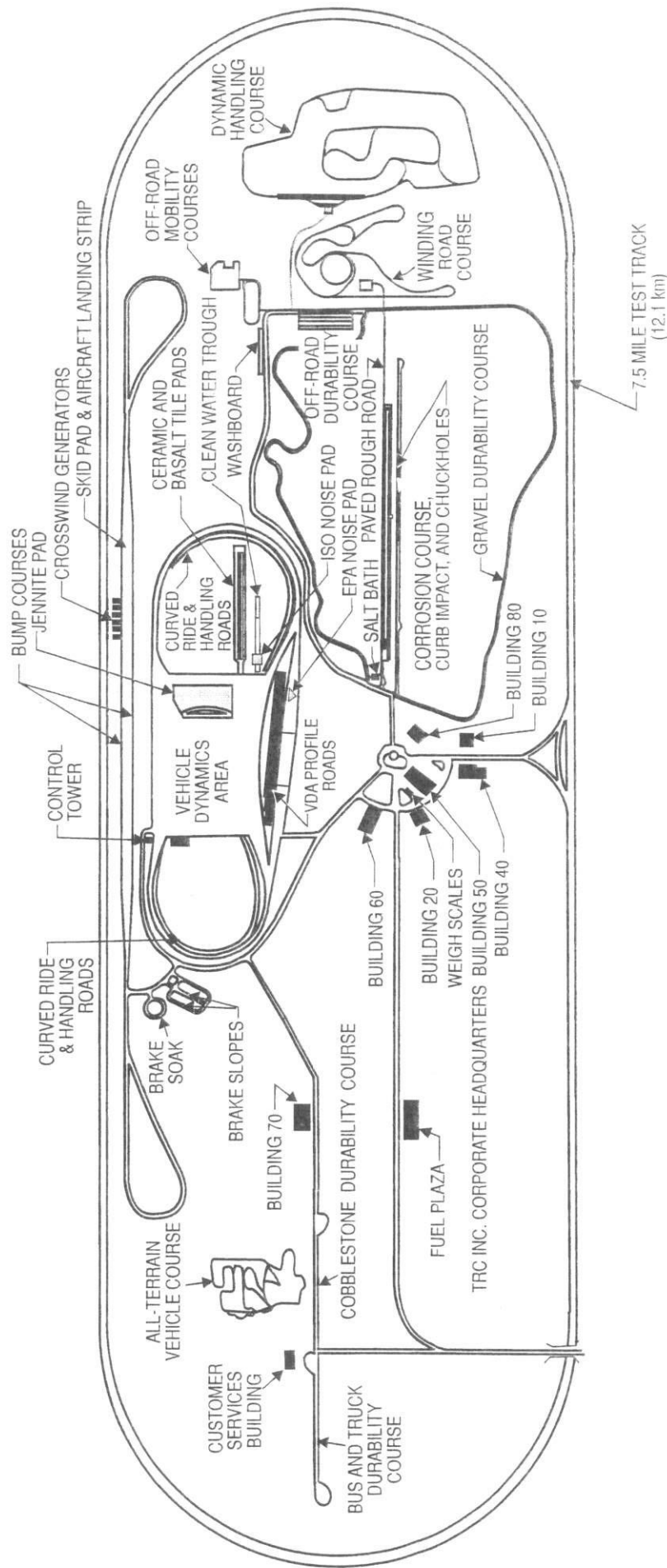
The overall dimensions of the pad are 9,000 feet by 84 feet with loops on the north and south ends. Both turnaround loops have a 309-foot radius and are 16 feet wide with a 25 percent super elevation. They will accommodate speeds of 45 mph with zero side force and 60 mph with .5 g's lateral acceleration. The acceleration/deceleration lanes at each end are 3,280 feet in length.

A test area of 210,000 square feet is situated in the center of the skid pad containing several test pads with varying surface textures. Skid numbers in this area range from 30 (wet) to 80 (dry).

The skid pad is paved with Portland cement. The load capacity of the skid pad is 36,000 pounds maximum single axle weight and 48,000 pounds maximum tandem axle weight.

Varying surface textures in the main test area are ideal for testing tire and/or brake system performance on different surfaces as characterized by "skid numbers." The skid pad is also used for acceleration studies, aerodynamics, rolling resistance, noise testing, and vehicle top speed determination.

The subject test vehicle was rear wheel anti lock equipped. Rather than rapidly and fully applying the service brake control, the driver modulated the service brake control as necessary to control/prevent front wheel lock.



NOT TO SCALE

## TEST FACILITY DETAIL

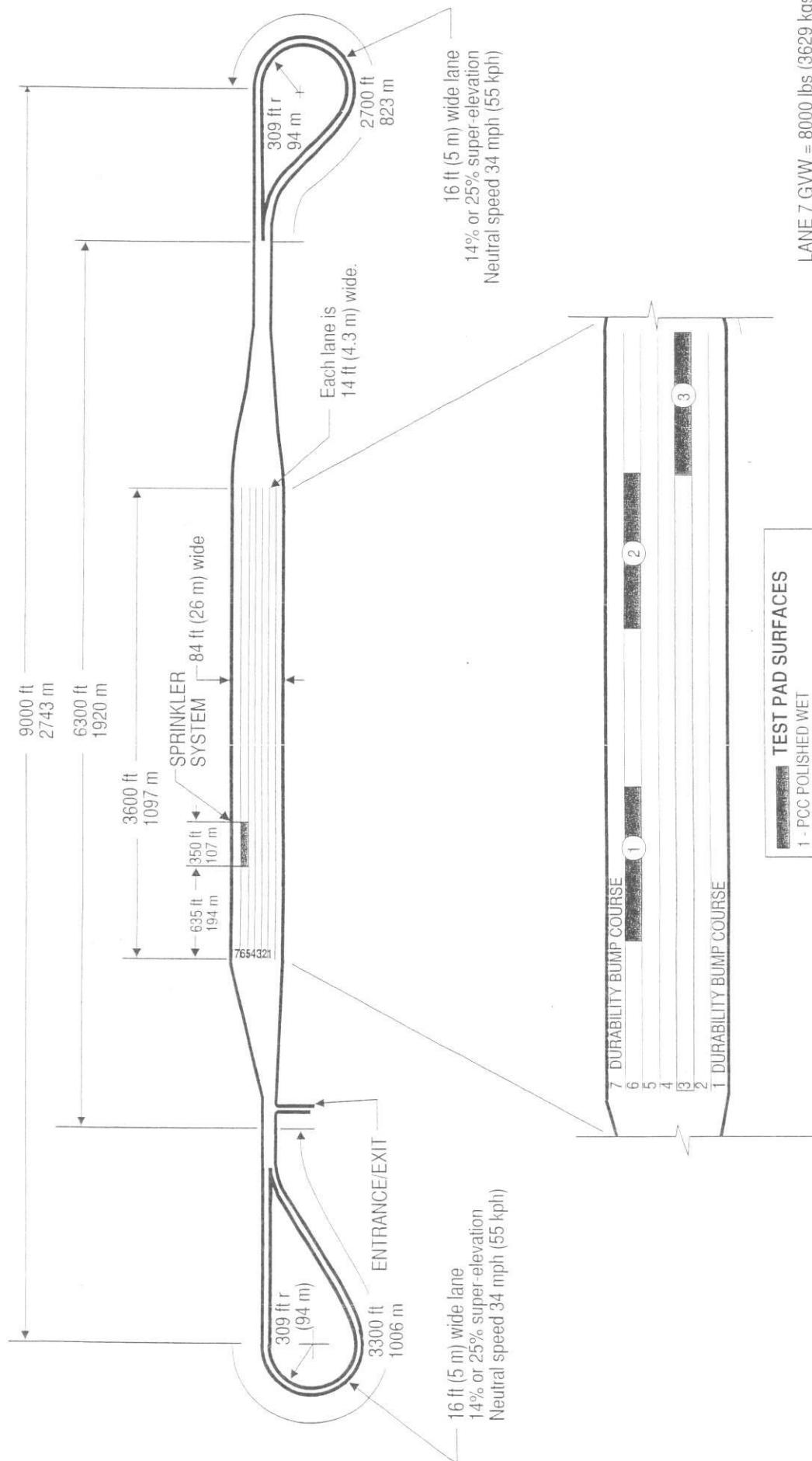


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F-15 0605



N

ALL CONCRETE BROOMED SURFACE  
1 LAP = APPROXIMATELY 4 MILES (6.4 KILOMETERS)



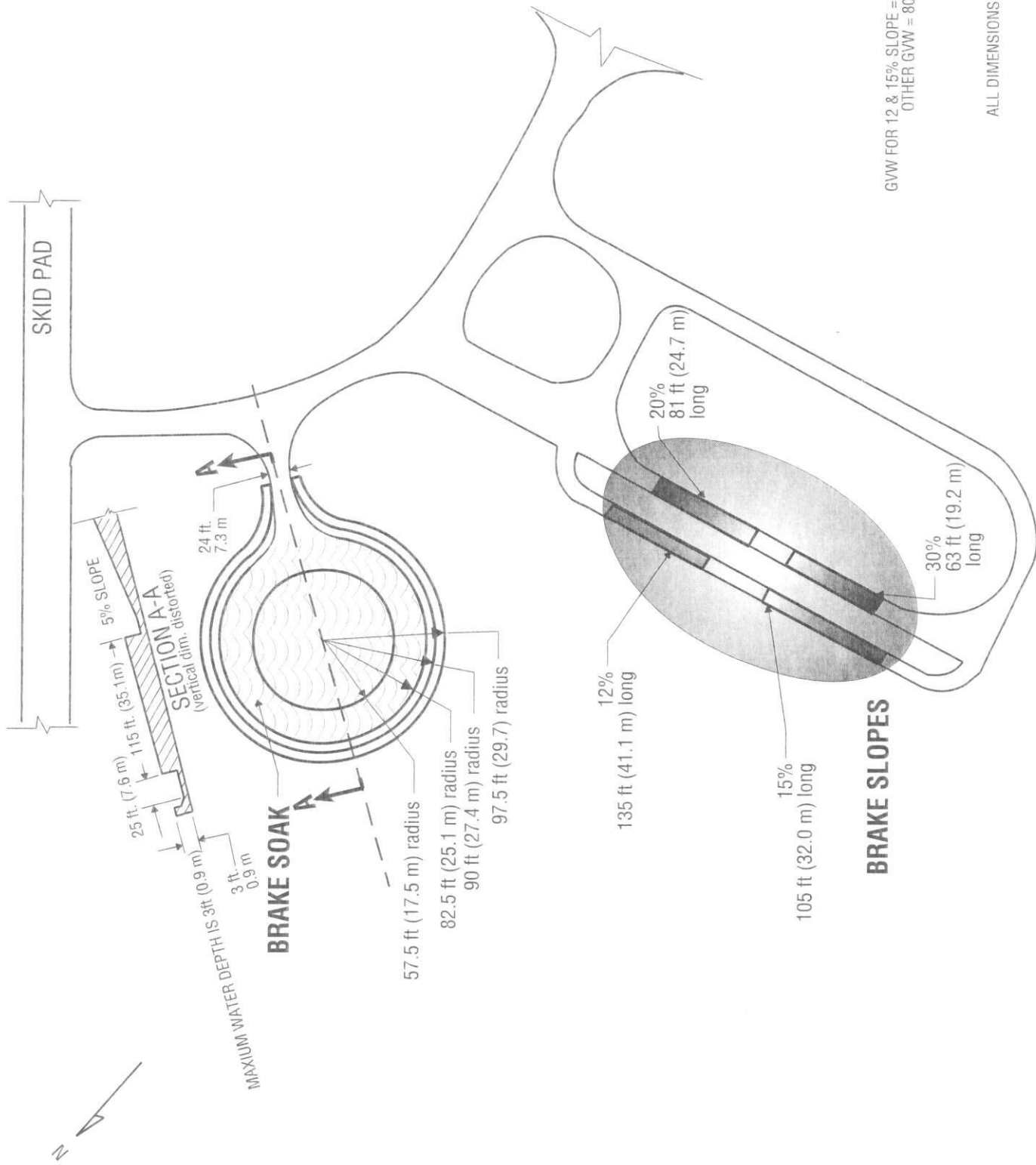
NOTE: BUMP COURSES PARALLEL THE PERIMETERS OF LANES 1 AND 7.

Not to scale  
All dimensions are approximate

**TRC**

**SKID PAD**

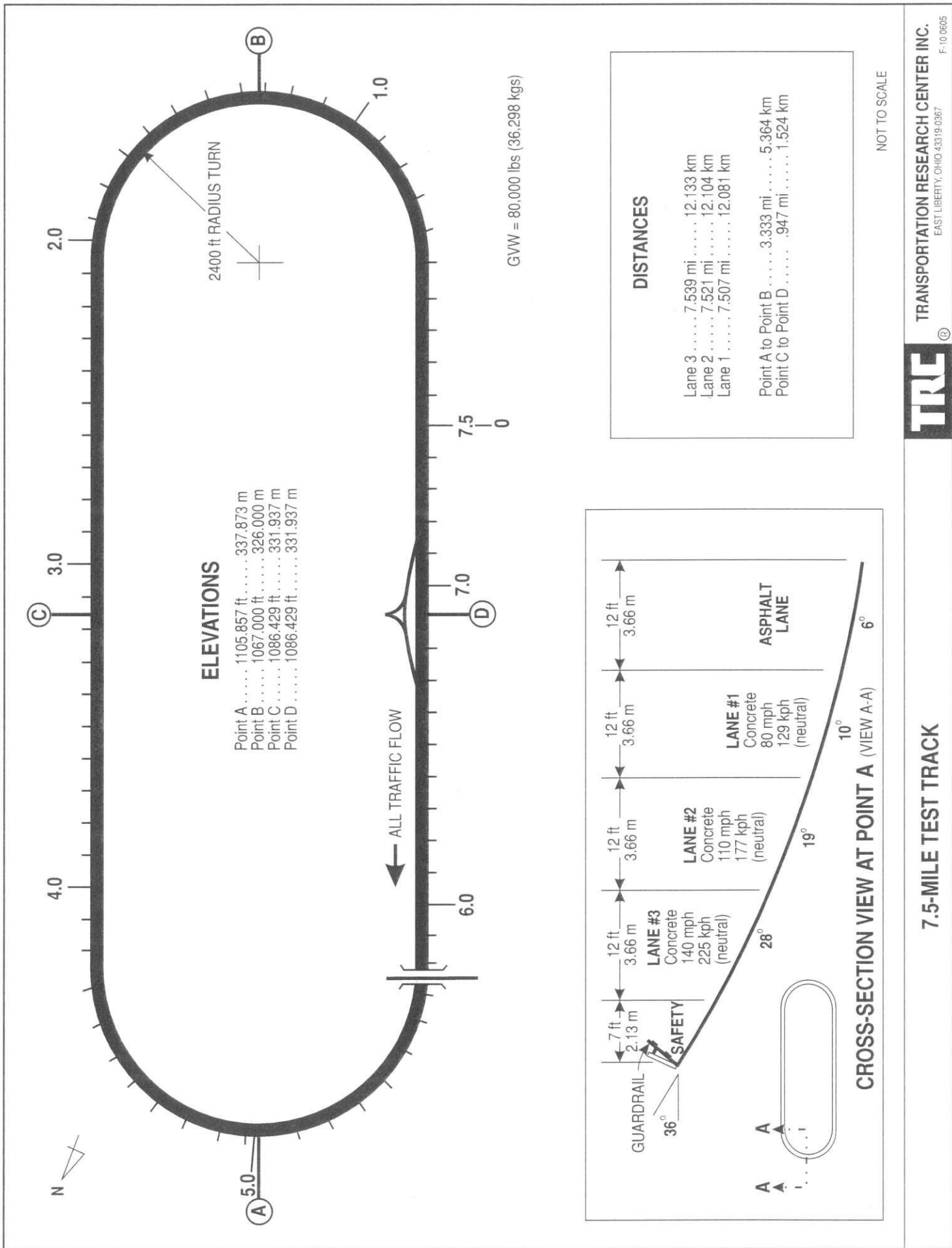
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EAST LIBERTY, OHIO 43319-0367  
F-13 0699



GVW FOR 12 & 15% SLOPE = 4000 lbs (1814 kgs)  
 OTHER GVW = 80,000 lbs (36,296 kg)

NOT TO SCALE  
 ALL DIMENSIONS ARE APPROXIMATE

# BRAKE SOAK and BRAKE SLOPES



## APPENDIX D

### Notice of Possible Non-Compliance

This vehicle (C85400) met the requirements of the FMVSS 135 standard.